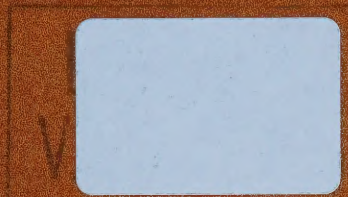


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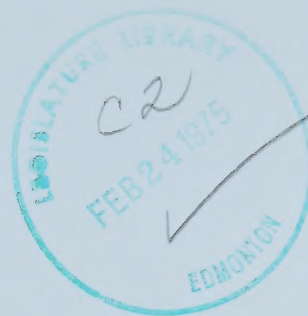
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PROVINCIAL CANCER HOSPITALS BOARD



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PROVINCIAL CANCER HOSPITALS BOARD REPORT 1972-1973



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Introduction

Since the Board took office in 1968, each year has seen definite progress toward the goal of improving cancer treatment services in Alberta. Our emphasis in the past few years has been placed on diagnostic and treatment facilities for patients with cancer; in the next few years, increasing attention will be devoted to the introduction of preventive and early diagnostic programs. Cancer research and the education of health professionals are now recognized parts of the provincial cancer plan. The Board wishes to acknowledge the support of the Department of Health and Social Development, and of the many organizations and individuals who have assisted in the establishment of our research projects.

Although much progress has been made, the Board regrets that they have not yet succeeded in constructing a new Calgary Cancer Centre. The current Calgary Clinic is overcrowded. While improvements have been made in the physical plant, schedules are tight and working conditions are less favourable than the Board would like to see. However, we anticipate that by the end of 1974, work will have started on the new Calgary Cancer Centre.

A critical area of Board activity has centered on the establishment of working relationships with the medical profession, the Faculties of Medicine, and lay agencies concerned with cancer. The Board acknowledges with pleasure the assistance and advice provided by these groups and individuals and looks forward to continuation of mutual planning for the benefit of citizens of our province.

T. D. BAKER, F.C.C.T., M.Ed., LL.D.,
Chairman,
Provincial Cancer Hospitals Board.

Members And Officers Of The Provincial Cancer Hospitals Board

EXECUTIVE OF THE BOARD

T. D. BAKER
—Chairman
—Box 207, Evansburg, Alberta

J. W. MACGREGOR, M.D.
—Vice Chairman
—4911 - 114B Street, Edmonton, Alberta

BOARD MEMBERS

W. S. ANDERSON, M.D.
—801 - 11920 - 100 Avenue, Edmonton
Alberta

A. D. DAVIS (1968-1973)
—55 Eagle Ridge Drive, Calgary, Alberta

MRS. M. DOLGOY
—10233 - 125 Street, Edmonton, Alberta

MRS. B. JASMAN
—Three Hills, Alberta

MRS. R. D. McKENZIE
—Box 268, Vegreville, Alberta

W. G. MILNE (1972-1973)
—221 Roxborough Road, Calgary, Alberta

R. J. R. NOYES
—5110 - 47 Street, Lloydminster, Alberta

H. THOMPSON (1969-1972)
—Calgary, Alberta (now resides in Victoria,
B.C.)

PROVINCIAL ADMINISTRATION

R. NEIL MacDONALD, M.D.
—Executive Director

H. B. MASON
—Provincial Business Administrator

M. GRACE
—Director, Research and Development Dept.

J. T. DALLOW
—Director of Personnel

N. McLEOD
—Director, Building and Engineering Dept.

MISS M. DUNCAN
—Chief Accountant

DR. W. W. CROSS CANCER INSTITUTE ADMINISTRATION

R. NEIL MacDONALD, M.D.
—Director

G. J. TOURIGNY, D.H.A.
—Administrator

J. COOK
—Director of Pharmacy

MISS S. LIVINGSTONE
—Director of Nursing

CALGARY CANCER CLINIC ADMINISTRATION

J. R. FRANCIS, M.D.
—Medical Director

MRS. A. MITCHELL
—Administrative Officer

MRS. A. CHERRY
—Nursing Supervisor, Out-patient Dept.

LETHBRIDGE CANCER CLINIC ADMINISTRATION

D. A. RICE, M.D.
—Medical Director

MRS. E. DERBYSHIRE
—Chief Clerk

Executive Director's Report

Although regular administrative reports have been prepared in the past, the Provincial Cancer Hospitals Board has not published a comprehensive report on its current activities and plans for the future. In the past three years, the Board has reviewed its objectives and derived a particular philosophy for cancer care. New programs are in progress which reflect the directions adopted by the Board. Therefore, at this time it appears appropriate to commence publication of an Annual Report which will inform the public at large, the medical profession, and sister cancer centres in other parts of the world, of our hopes, our actions, and our problems. As a result, we hope to improve communication with our colleagues which will enable us to provide a better service for the community we serve.

We have elected to back date the first report to encompass 1972 as we believe a two-year report will provide a better perspective on our activities.

PHILOSOPHIES AND OBJECTIVES

Because of public concern with cancer and the economic hardship created by cancer, the Government of Alberta established a Cancer Services Program in 1939. Under this program, payment for hospitalization, drugs and professional services were provided for cancer patients. Government sponsored cancer clinics were built in Calgary and Edmonton and space was leased for a clinic in Lethbridge. These clinics provide radiation therapy services (no other radiation therapy services exist in Alberta) and a general cancer consultative service.

Thus a system existed whereby an agency responsible for providing consultation and certain types of cancer therapy was also responsible for authorizing payment for cancer treatment rendered by all physicians in the province. The level of communication with the practicing profession was sometimes inadequate and physicians feared that the payment mechanism could be used to control therapy. Failure to achieve excellent liaison with the practicing profession and with the Faculty of Medicine isolated the full-time staff and created problems for recruitment of personnel. Data on the incidence of cancer in the province was gathered, but statistical reports were prepared in irregular fashion. The Provincial Cancer Clinics were not associated with the Faculty of Medicine; as a result, exposure of medical

students and residents to oncology were restricted and research programs did not develop in the clinics.

In 1968, responsibility for cancer services was moved from the immediate supervision of the Department of Health and made the responsibility of the Provincial Cancer Hospitals Board. An excellent structure, the Dr. W.W. Cross Cancer Institute, was constructed to house the administrative headquarters of the Board and to serve as a nucleus for Board activities in northern Alberta. During the early years of its existence, the Board studied cancer programs in other areas and sought advice from the provincial medical profession and other groups on the re-design of a cancer program for the province. Based on these studies, and on the rapidly changing requirements for cancer programs brought about through recent research, the Provincial Cancer Hospitals Board has adopted the following philosophy to guide its future planning.

Administration:

1. Cancer services cannot exist in isolation from lay groups concerned with cancer, the medical profession, or the Provincial Faculties of Medicine. Attempts to do so result in misunderstanding and competitive programs which weaken not only the provincially sponsored programs, but those of the other individuals and groups in the province, who are concerned with cancer.
2. The advent of publicly sponsored health insurance plans negates requirement for the Board to supervise a separate payment scheme for physician fees.
3. The significance of the disease to society, the promise presented for control through continued exploitation of research, and the need for province-wide programs in prevention, early diagnosis, rehabilitation and epidemiology, all suggest the advisability of revising cancer legislation to allow the introduction of a comprehensive cancer program for the province.
4. The Provincial Cancer Hospitals Board should serve a co-ordinating role for the various agencies and organizations concerned with cancer, but have the authority to ensure that a vigorous campaign against cancer is mounted in Alberta.

5. The Alberta Medical Association and the College of Physicians and Surgeons are concerned with the organization of provincial health services. The Board must work in harmony with these groups to ensure co-operation of practicing physicians in the province.

Service:

1. Excellent service cannot be provided to our citizens without the coincident presence of excellent educational and research programs. Otherwise, our future health professionals will have inadequate training in malignant disease to the consequent detriment of their future patients. Management of cancer is becoming increasingly complex and students must be exposed to modern oncologic concepts in order to provide the community with adequate care. If a strong research arm is not created by the provincial service, then recruitment of bright and creative personnel will be curtailed and the introduction of the results of recent successful research for the benefit of Alberta citizens will be jeopardized.
2. Research and education are primary responsibilities of the Provincial Faculties of Medicine; therefore affiliation agreements with both Faculties must be created so that harmonious development of oncology programs in both the Faculties of Medicine and the Provincial Cancer Service may come about.
3. Pending the discovery of a "magic bullet", advances in treatment of cancer over the next decade will depend on the introduction of programs which integrate the various modalities of therapy available at the present time. Episodic management of cancer patients, whereby surgery and radiation therapy are used in sequence and chemotherapy or immunotherapy are only introduced when patients have far advanced disease, will discontinue and be replaced by treatment protocols in which all modalities of therapy are brought to bear at the time of diagnosis when the total amount of tumor present is small.
4. Introduction of the above noted concept requires the creation of a series of inter-hospital study groups and interdisciplinary clinics through which the expertise contained in various specialties can be brought together for the assistance of patients with cancer.
5. Where it can be demonstrated that cancer patients will benefit through the application of complex therapy which requires special facilities or special expertise, agreement should be reached for the creation of these facilities and for their full utilization throughout the province.
6. All cancer patients in the community, regardless of residence, should be entitled to expert opinion at onset of their disease and careful follow-up after treatment. The Alberta Medical Association and the College of Physicians share this objective. Mechanisms of creating a program to ensure this aim will be developed in concert with these organizations; the program will include:
 - a. A plan to ensure that all cancer patients have the right to be seen in consultation by a physician who is a well trained specialist knowledgeable in management of malignant disease.
 - b. Assurance of equal access to care through organization of peripheral clinics, assistance with transportation, establishment of hostels and establishment of excellent communication with practitioners in all parts of the province.
 - c. Provision of assistance to the Alberta Medical Association to enable them to organize a medical audit program for cancer.

Research:

1. Where strong basic cancer research groups exist, the provincial clinics should assume the role of clinical arms for the basic science groups so that the citizens of the province may benefit as early as possible from creative research developments.
2. A strong research arm is an integral component of a cancer program. The Provincial Cancer Hospitals Board should encourage, and, if funds are made available, be prepared to support innovative research programs, both within its units and throughout the rest of the province.

Education:

1. The educational activities of the Board should be closely linked with the Provincial Faculties of Medicine. Participation in clinic activities of medical students, graduate students, nurses and other health professionals, as well as practicing physicians must be encouraged.
2. The Medical Audit Program of the Alberta Medical Association will serve a valuable educational function for physicians in practice. Introduction of this innovative plan must be encouraged.

PROGRESS REPORT

Liaison — Medical Profession:

In 1971 a liaison committee consisting of representatives from the Alberta Medical Association and Provincial Cancer Hospitals Board was established to review the Cancer Services Program. A proposal for change in cancer services was adopted by both organizations in 1972 which called for full registration of cancer patients, guarantee of excellent consultative service for cancer patients, transfer of payment for cancer services to the Health Care Insurance Commission, and the creation of a medical audit program for cancer. The Health Care Insurance Commission will assume the full payment function for cancer patients on August 1st, 1974. The Provincial Cancer Hospitals Board has submitted a grant proposal to the Federal Government for support for a computerized cancer registry for the province. The registry, aside from the usual functions, will be utilized to co-ordinate a follow-up program of cancer patients between cancer centres and practicing physicians in the community, thus, hopefully, avoiding unnecessary duplication of services. Responsibility for organization of the medical audit program and for the establishment of designated specialists lies with the College of Physicians and Surgeons and the Alberta Medical Association.

In order to ensure the co-operation of the medical profession in reorganization of cancer services, considerable effort has been made in the past three years to develop a meaningful dialogue with physicians in the province. The Alberta Medical Association and members of the Association have been invited to sit on planning committees of the Provincial Cancer Hospitals Board; the Executive Director visited all parts of the province and spoke at major hospitals in Calgary and Edmonton, and members of the cancer centres participated in a series of continuing education programs, both planned within the Cross Institute and organized in communities throughout northern Alberta.

Two full-time members of the staff of the Provincial Cancer Hospitals Board now sit on the Alberta Medical Association Committee on Cancer, and Provincial Cancer Hospitals Board staff members contribute actively to the affairs of the Association.

Liaison with the profession in northern Alberta has been enhanced by the creation of interhospital study groups and interdisciplinary clinics within the Cross Institute with wide participation by members of the staff of all active Edmonton teaching hospitals and several hospitals in other parts of Alberta. A new peripheral clinic has been started in Red Deer and participation by members of the Cross Institute staff in the existing peripheral clinics has increased.

Liaison — Faculties of Medicine:

A close working relationship with the University of Alberta Faculty of Medicine has developed and an Affiliation Agreement was signed in 1972. The radiation therapy staff of the Cross Institute also serve as the Division of Radiation Therapy of the Faculty, while all full-time members of the staff of the Cross Cancer Institute hold university appointments. A proposal has been submitted to the Provincial Cancer Hospitals Board and to the Dean of Medicine suggesting creation of a Division of Oncology within the Faculty. Active involvement in the Faculty of Medicine has enhanced the educational and research programs of the Institute while providing a means for ending the isolation in which the Institute existed and for improving communication with all practicing physicians in northern Alberta.

While university appointments are held by a number of the full-time Cancer Centre staff in Calgary, active participation in the Faculty of Medicine affairs and completion of an Affiliation Agreement have not yet come about in Calgary. However, a proposal for creation of an Oncology Interest Group within the Faculty which would be co-ordinated with the Cancer Centre has gone forward to the Dean of Medicine, and Provincial Cancer Hospitals Board and will be studied by representatives of the practicing profession in Calgary during the fall.

Liaison — Canadian Cancer Society:

The Canadian Cancer Society (Alberta Division) has long maintained an interest in gathering the funds for cancer research, provision of certain patient services, and development of public educational campaigns. Members of the Provincial Cancer Hospitals Board staff have increased their participation in the public educational societies and promotional programs for fund

raising campaigns. A number of joint patient service programs have evolved; notably the Reach for Recovery Program for patients with breast cancer and the Ostomy Program for patients with bowel cancer. Members of the Cancer Society have participated in planning committees of the Provincial Cancer Hospitals Board; their contribution has been greatly appreciated.

New Facilities:

A new Cancer Clinic in Calgary is badly needed and a functional program for construction of a new Calgary Cancer Centre has been developed. It is proposed that the Centre be located adjacent to the Faculty of Medicine building. As a result, utilization of the Faculty of Medicine as a community resource will be enhanced and an excellent foundation for integration of research and education with patient service will be provided.

Research:

Through support from the Provincial Government, the National Cancer Institute of Canada, the Canadian Cancer Society and from private donors, an Immunology Research Laboratory has been created within the Cross Cancer Institute. The activities of the Cross Institute research group is clearly linked with immunologic research groups throughout the rest of the University and in other parts of the world.

Fortunately, the location of the Cross Institute allows for inauguration of a co-operative research program with the McEachern Laboratory who are studying techniques for destruction of cancer cells by chemical means. A series of joint research projects have come into existence during the past two years and staff from both unite together with other cancer research workers in other parts of the Faculty of Medicine and now meet on a monthly basis at a "Cancer Research Conference". In addition, other clinical investigative programs have developed within the Cross Institute; a number of these are organized on a local basis but a significant number are co-operative studies with colleagues in other parts of Canada, the United States and Europe.

Funds available for research in Canada from public sources are decreasing at the same time that the Provincial Cancer Hospitals Board is attempting to generate a comprehensive research program. With the decrease in available federal funds, the role of the Provincial Government and the private sector in the support of cancer research becomes more important. Endowment and research trust funds of the Board have shown a significant increase during

the past two years; the Provincial Government has provided a total of \$70,000 during 1972 and 1973 while the number of private contributors has increased.

While the provision of research funds directly to the Provincial Cancer Hospitals Board is essential at this early stage of research development, the Board recognizes the importance of supporting the efforts of the Canadian Cancer Society in obtaining private support in Alberta for cancer research channeled through the National Cancer Institute of Canada. Our personnel are not engaged in active solicitation of research funds aside from their efforts on behalf of the Canadian Cancer Society at the time of the annual campaign. We believe that a general increase in knowledge about cancer and concern for support of cancer research has occurred amongst the citizens of Alberta in the past two years and believe that the efforts of the Provincial Cancer Hospitals Board has helped to bring this about.

Commencement of a balanced clinical and basic research program in cancer in southern Alberta awaits the construction of a new Calgary Cancer Centre and the completion of affiliation arrangements with the University of Calgary. Nevertheless, the staff of the Calgary Cancer Clinic are currently participating in a number of the clinical research projects described above. The Department of Physics of that Clinic has maintained an active interest in the use of automation to support radiation therapy planning and several innovative developments in this area have come forward during 1972 and 1973.

CANCER LEGISLATION

In 1973 the Provincial Cancer Hospitals Board organized an ad hoc committee consisting of representatives from the Board, the Canadian Cancer Society, the Faculties of Medicine and the Alberta Medical Association to review current cancer legislation and, if indicated, to develop proposals for a new cancer act. The committee has met throughout the fall of 1973 and at the conclusion of the year were reviewing a draft of a proposed new cancer act which will go forward to government during 1974. The participation of representatives of the major agencies concerned with cancer in planning of projected future cancer services in the province is a practical example of the improved liaison for which the Provincial Cancer Hospitals Board has worked.

The past two years has been a time of readjustment of philosophy and momentous change within the Provincial Cancer Hospitals Board organization. A major thrust has been

towards the creation of appropriate links with sister agencies and expansion of the concept of cancer care to include research and educational programs. In the next year and succeeding years, the Board will endeavor to consolidate the progress that has been made in care of patients with cancer. However, new thrusts in public education, early diagnosis of cancer, and rehabilitation of cancer patients must be made in order to fully develop a comprehensive cancer

program for citizens of the province. The Provincial Cancer Hospitals Board is grateful for the support provided during the past two years from government, medical organizations, and the public at large. Communication between all of us concerned with cancer has improved. Maintained public interest in the problem of cancer will enable the Provincial Cancer Hospitals Board to continue to make progress during the next year and succeeding years.

R. NEIL MacDONALD, M.D., F.R.C.P.(C)
Executive Director
Provincial Cancer Hospitals Board

DR. W. W. CROSS CANCER INSTITUTE

Alberta

Dr. W. W. Cross Cancer Institute Medical and Scientific Staff

DEPARTMENT OF DIAGNOSTIC RADIOLOGY

Director — GUTTER, DR. Z.

Active Staff

CASTOR, DR. W.
FERRI, DR. H. A.
SIWAK, DR. T. H.

DEPARTMENT OF GYNECOLOGY

Director — BROWN, DR. L. B.

Active Staff

BECK, DR. R. P.
BELL, DR. D. M.
BOULTON, DR. J. J.
BOYD, DR. J. A.
BUCHANAN, DR. D. M.
BUGIS, DR. J.
CLARKE, DR. T. R.
CROOKS, DR. H. J.
DAY, DR. J. C.
DAY, DR. R. A.
DEVINE, DR. S. W.
DUNLOP, DR. D. L.
FERGUSON, DR. W. F.
FINZER, DR. K. H. W.
FUNG, DR. CHIN-POK
GAILIUNAS, DR. V.
HORNER, DR. R. H.
HUSEL, DR. D. H.
KREDENTSER, DR. B.
MARKO, DR. JOHN
MCBRIDE, DR. R. L.
MORCOS, DR. F. H.
MOYER, DR. D. J.
OSTOLOSKY, DR. R.
REID, DR. D. W. J.
RINGROSE, DR. C. A.
RITCHIE, DR. D. C.
ROSS, DR. H. G. T.
SCHULZE, DR. W. B.
SMITH, DR. D. M.
TRAFF, DR. T. N.
WEIR, DR. N. W.
WESTGATE, DR. A.
WINTER, DR. R. W.

Consulting Staff

GANS, DR. L. J.
LEEDER, DR. J.
VANT, DR. J. R.

DEPARTMENT OF MEDICINE

Director — MCPHERSON, DR. T. A.

Active Staff

Chest Disease

BUCKLE, DR. F. G.
SPOULE, DR. B. J.

General Practice

BLUNDEN, DR. A. G.
BOWMAN, DR. G. R. J.
CHEPEHA, DR. N.
CREURER, DR. M.
GRAHAM, DR. H. D.
HUTTON, DR. W. I. K.
LEGERSKI, DR. R. J. C.
LETTS, DR. T. B.
MILLER, DR. M. J.
MUSCH, DR. L. J. A.
NETT, DR. A.
O'GRADY, DR. T. T.
OMELCHUK, DR. A.
PEDERSEN, DR. J.
QUANDT, DR. P. L.
SCHWEDA, DR. N. E.
SCHWARZ, DR. H. A. J.
SECTER, DR. B.
SNIHUROWYCH, DR. M.
SMULSKI, DR. J.
VIK, DR. K. E.
WOODMAN, DR. J. C.
YAKE, DR. W. W.
ZETTER, DR. G. R.
SZEKELY, DR. E.

Internal Medicine

BAND, DR. P. R.
BLACK, DR. W. R.
CAIRNS, DR. A.
CROCKFORD, DR. P. M.
DANIAL, DR. B. H.
EDWARDS, DR. A. M.
ELLIOTT, DR. J. F.
GILBERT, DR. J. A. L.
HARLEY, DR. C. H.
KHALIQ, DR. A.
MACDONALD, DR. R. NEIL
MANT, DR. M. J.
SALTER, DR. E. A.
TUSZ, DR. D. J.
VENNER, DR. A.
WEINSTEIN, DR. W. M.
WEISZ, DR. S.

Neurology

BLAIN, DR. J. G.
JACOBS, DR. H.

Pediatrics

AKABUTU, DR. J.
SELBY, DR. G. W.

Courtesy Staff

AMATO, DR. V.
BRAND, DR. H. M.
COGLON, DR. R. B.
CONRADI, DR. G.
DAWRANT, DR. A. G.
LIANG, DR. F. N.

LUCAS, DR. J.
RUSSELL, DR. J.
SAMUELL, DR. C. N.
SARTOR, DR. V. E.
TURNER, DR. E. J.
ULAN, DR. O. A.

Medical Director's Privileges

KATAKKAR, DR. S.
YOSHIDA, DR. S.

Consulting Staff

BROWN, DR. JACK
BROWN, DR. G. D.
GAUK, DR. E. W.
GOLDSAND, DR. G.
GREENHILL, DR. S.
HOPKYNS, DR. J. C.
IRVING, DR. D. W.
IWANEC, DR. WASYL
KING, DR. G.
KORNELL, DR. S.
MCLEAN, DR. D. R.
MITCHELL, DR. M.
RENTIERS, DR. P. L.
SILVERBERG, DR. D. S.
STEFANYK, DR. H.
THOMSON, DR. R. K.
WENSEL, DR. R. H.
SWITING, DR. R. H.

Research Associates

BROX, DR. L. W.
HENDERSON, DR. J. F.
LEPAGE, DR. G. A.
PATERSON, DR. A. R. P.
SHAW, DR. A.

DEPARTMENT OF MEDICAL PHYSICS

Director — USISKIN, DR. S. R.

Research Associates

SCRIMGER, DR. J. W.

DEPARTMENT OF NUCLEAR MEDICINE

Director — LENTLE, DR. B.

Active Staff

JACKSON, DR. F.

Research Associates

NOUJAIM, DR. A.
SHYSH, DR. A.
MASSE, DR. S.

DEPARTMENT OF RADIOTHERAPY

Director — PEARSON, DR. J. G.

Active Staff

BURNS, DR. P. E.
GLAZEBROOK, DR. G.
MCGOWAN, DR. D. G.
URTASUN, DR. R. C.

Medical Director's Privileges

MUSA, DR. B.

DEPARTMENT OF RESEARCH & DEVELOPMENT

Director — GRACE, DR. M.

DEPARTMENT OF SURGERY

Director — MCCARTEN, DR. A. B.

Active Staff

Anaesthesiology

MCINTYRE, DR. J. W. R.
PALETZ, DR. S. G.

General Surgery

ANDERSON, DR. W.
ALLIN, DR. E. S.
ANSELMO, DR. J. E.
BESNEY, DR. M.
BONDAR, DR. G. F.
BOWES, DR. K.
COX, DR. S. F.
DAVIS, DR. R. G.
FRASER, DR. R. E.
FRIEDMAN, DR. M. H. W.
GRAHAM, DR. J. A.
HACKETT, DR. R. M.
HALLGREN, DR. R. A.
HYDE, DR. H. A.
JESPERSEN, DR. R.
JOHNSTON, DR. R. J.
JORDAN, DR. R. W.
KLING, DR. S.
LASKIN, DR. M. M.
LINKS, DR. H.
MACBETH, DR. R. A.
MARGOLUS, DR. B. D.
MILLETTE, DR. L. J.
MYERS, DR. H. A.

PISESKY, DR. W.
RICHARD, DR. H. L.
RIVERS, DR. L.
SALMON, DR. P. A.
SCHMIDT, DR. E. K.
SIEGENBERG, DR. J.
STRUTZ, DR. W. A.
THEMAN, DR. A. E.
THURSTON, DR. O. G.
TURNER, DR. F. W.
TWOREK, DR. E. J.
WIANCKO, DR. K.
WILLIAMS, DR. H. T. G.
WILLOX, DR. G. L.
YAKIMETS, DR. W. W.

Neurosurgery

ALLEN, DR. P. B. R.
MONCKTON, DR. G.
O'CALLAGHAN, DR. W.
WEIR, DR. B. K. A.

Ophthalmology

ROOTMAN, DR. J.
SHUTT, DR. H. K.

Orthopedic Surgery

MOREAU, DR. J. P.
RIGAL, DR. W. M.
SINGH, DR. S.

Otolaryngology

LUPIN, DR. A. J.
MALLEN, DR. R.
VYAS, DR. U. K.

Plastic Surgery

ALTON, DR. J. D. M.
HAYASHI, DR. T.
LOBAY, DR. G. W.
SHIMIZU, DR. H. J.
VOLOSHIN, DR. P. J.

Thoracic & Cardiovascular Surger

CALLAGHAN, DR. J.
MELTZER, DR. H.
NAKAI, DR. S. S.
ROSS, DR. C. A.

Urology

BOAKE, DR. R. C.
BOCHINSKI, DR. B.
CONROY, DR. F. D.

DUSHINSKI, DR. L. M.
EID, DR. T. C.
FRANCIS, DR. R. R.
LAKEY, DR. W. H.
MCPHEE, DR. M. S.
METCALFE, DR. J. O.
ROBINSON, DR. S. M.
SHANDRO, DR. W. A.

Oral Surgery

STRELIOFF, DR. M. G.

Courtesy Staff

COUVES, DR. C. M.
DIDUCH, DR. L. T.
KOSTIUK, DR. A.
STERNS, DR. L. P.
STOCKBURGER, DR. H.

Consulting Staff

ALLIN, DR. G. E.
AYERS, DR. T. N.
BACKSTROM, DR. A. R.
BOILEAU, DR. J. A.
BURY, DR. R. J.
CAMERON, DR. G. W.
COLTER, DR. D.
COULTER, DR. H. B.
CUTHBERTSON, DR. A.
FISK, DR. R. L.
FLETCHER, DR. C. M.
GORT, DR. J.
GIBSON, DR. W. J.
HOPKINS, DR. I. A.
KEOHANE, DR. J. T.
LEITCH, DR. G. T. J.
MCKENZIE, DR. A.
MACKENZIE, DR. W. C.
MACLEAN, DR. W. A.
MARSHALL, DR. F. C.
MICHALYSHYN, DR. B.
MORTON, DR. G. K.
PAWLUK, DR. W.
PRAKASH, DR. A.
RAMAGE, DR. H. C.
ROSTRUP, DR. O.
SCOTT, DR. G. W.
WEISLER, DR. M. N.
WILSON, DR. T. S.

Note: Full-time members
are listed with
Departmental Reports.

Medical Director's Report

The Executive Director's and departmental reports contain information on the activities in the Cross Institute during 1972 and 1973; years during which the objectives of the Institute were reviewed and programs of the Institute were remodelled. This report will summarize the functions of the Institute and emphasize our activities in relation to these functions. The Cross Cancer Institute exists to:

1. provide consultative services,
2. provide unique therapeutic programs,
3. provide special diagnostic facilities,
4. provide special training programs,
5. provide a nidus for out-reach programs,
6. provide a base for provincial programs.

During 1972 and 1973, steps were taken to encourage a more active participation by members of the medical community in the affairs of the Cross Institute and the number of physicians taking part in clinics increased dramatically. We believe that the presence of physicians in the city and surrounding areas working side by side with the full-time staff of the Cross Institute in interdisciplinary clinics has improved the quality of the consultations we provide and enhanced the spirit of co-operation which should exist between our full-time staff and their colleagues in other hospitals.

The total number of new patients and follow-up patients within the Institute has not increased during the past years. In order to avoid unnecessary duplication of service and inconvenience for patients, we have attempted to reduce patient visits made simply for registration or for follow-up, when careful follow-up is also carried out by their physician. We propose to employ a computerized data system to direct the co-ordination of follow-up services allowing us to clearly establish who is responsible for a patient's continuing cancer care and to ensure that the future follow-up of any patient is carried out in an integrated fashion following guidelines acceptable to the patients as well as members of the medical profession. Dr. Grace has succeeded in obtaining a National Health Grant to support the development of this program.

Physicians based within the Institute and colleagues in other active care hospitals in Edmonton have formed a series of interhospital study groups. These groups meet to design treatment protocols, to reach agreement on participation in collaborative national studies, and to consider the needs of the community for

management of the particular type of cancer under consideration. The Institute has sponsored visits of a number of distinguished colleagues from other areas to assist the interhospital groups with their work. Dr. McCarten and his associates in the Breast Study Group have profited from recent visits from Dr. Crile and Dr. Haagenson and are active participants in an international study on the early management of breast cancer.

In addition to the redesign of the out-patient clinics along interdisciplinary lines, the medical services provided by the Institute have changed in other ways. The in-patient bed complement was reduced by five during 1973 and the area freed was made into a Cancer Day Centre. The centre operates with regular nursing staff for twelve hours of the day and provides patients with an opportunity to receive blood transfusions, chemotherapy, and to undergo minor surgical procedures without the need for an in-patient admission. As a result, the period of hospitalization faced by cancer patients is reduced and the total cost of treatment should decrease.

Plans have been completed for establishment of a new Peripheral Clinic in Red Deer. The clinic is designed to work in close co-operation with Red Deer physicians and will be staffed by a radiotherapist and an internist from the Institute on a monthly basis. During their visit to Red Deer, this team will provide in-patient consultation, participate in a monthly Oncology Round in the Red Deer General Hospital and work side by side with Red Deer physicians in an afternoon clinic. A similar effort is being made to provide an educational and direct consultative service for physicians in Grande Prairie and Peace River in conjunction with the bi-monthly follow-up clinics in these areas.

New equipment has been obtained which enables the Institute to expand services offered to the community. In the Department of Radiotherapy, a linear accelerator was commissioned in 1972 and a simulator and treatment computer were obtained in 1973. Xerography has been introduced by the Diagnostic Radiology Department and the Department of Nuclear Medicine has obtained an additional gamma camera to assist them in handling their large clinical load. Through the Canadian Cancer Society and the McEachern Laboratory, the Institute received a white cell separator which enables us to obtain large quantities of cells for study in order to determine

their specific sensitivity to anti-cancer agents; in addition, this machine can be used to provide, for the first time, white cell transfusions.

The use of chemical agents has been greatly expanded and immunotherapy has been introduced into clinical programs for the first time. Many of these treatment programs are extremely complex and the Institute is developing the special resources in manpower and equipment required to enable patients in Alberta to benefit by these new approaches to therapy of malignant disease.

The Department of Diagnostic Radiology offers special diagnostic facilities, particularly for the diagnosis of lymphomas, breast cancer, and lung cancer. The nuclear medicine capacity of the Institute has been greatly strengthened by the addition of Dr. Brian Lentle to the staff in 1972. Radio-nuclide testing has become an essential feature of diagnostic testing for cancer and despite renovations and additional equipment, the Department of Nuclear Medicine continues to work at full capacity. In addition to providing excellent service, a number of important clinical studies have been published by the department.

Dr. McPherson in the Department of Medicine is conducting research on the use of immunologic procedures for determining the presence of cancer. Among these procedures is the carcino-embryonic antigen test developed by Freedman and Gold in Montreal, a test that should be available for physicians during 1974. The CEA test is clearly not a "screening test", but is particularly useful in the follow-up of patients with cancer who had a high value prior to initial therapy (particularly those with bowel tumors).

The training role of the Institute has developed in conjunction with the Faculty of Medicine. Programs for the training of medical students, residents in radiotherapy, clinical fellows in medicine, nurses, and radiotherapy technicians now exist within the Institute. Regular teaching rounds have been inaugurated and on a yearly or bi-yearly basis the Institute sponsors a symposium on a current major cancer problem.

The Cross Institute has been fortunate in retaining a uniformly high calibre of staff. Our nurses, technicians and hospital support staff in all departments have been asked to take on heavier responsibilities during the past two years, yet they maintain excellent esprit and continue to provide the community with excellent service.

Our volunteers add an indispensable ingredient to Institute programs. They do this through such programs as the volunteer drivers, serving coffee and lunches to out-patients and the new diversional therapy program for in-patients.

These few examples of their ever growing program outline their significant contribution toward achieving our goal of providing optimal patient care in the Cross Cancer Institute.

The growth of the Institute is gratifying, but the expansion of Institute programs has created problems which must be faced during the forthcoming year. An urgent need exists for recruitment of additional radiation therapists and medical oncologists. Only a few physicians are completing training programs in these disciplines and therefore recruiting is difficult. We must attract Alberta graduates into these specialties and we believe that the new educational programs that are developing will eventually provide us with the necessary personnel; however, an immediate need exists and recruiting efforts will increase throughout 1974.

Our budget support through 1972-73 was satisfactory and we are grateful for the continued support and expression of trust by the Alberta Hospital Services Commission and the Government of Alberta. We hope that burgeoning health costs will not force us to cut back during the next year on a cancer program which is beginning to show promising results.

In 1974, we look forward to refinement of our educational and research programs and a further co-ordination of the services we offer with other services available for cancer patients in the community. We believe that the research and educational objectives of the Institute can best be met through participation in a Division of Oncology which will be under consideration by the Faculty of Medicine during 1974. The Cross Institute is an obvious nidus for this Division and the creation of a Faculty interest group in oncology centred in the Institute will cement our relationships with both the Faculty of Medicine and the practising profession in northern Alberta. A number of the Institute staff are members of the committee to advise the Dean on the need and potential design of a University program in oncology and it is expected that recommendations will be forthcoming in 1974.

The last two years have been a period of considerable change in Institute philosophy and organization. We recognize that a time of change is a time of stress for people associated with the Institute. Therefore, we are particularly grateful for the cohesiveness of spirit shown by our staff and for the continuing support and encouragement provided by our colleagues and medical practitioners in northern Alberta.

R. N. MacDONALD, M.D., F.R.C.P.(C),
Medical Director
Dr. W. W. Cross Cancer Institute.

Dr. W. W. Cross Cancer Institute

Departmental Reports

ACTIVITY STATISTICS DR. W. W. CROSS CANCER INSTITUTE

	1972	1973
New Patients examined (including patients with benign disease)	2,387	2,228
Patients examined in peripheral clinics	816	740
Review Patients	16,829	15,773
In Patient Statistics		
Total in-patients treated	1,637	1,599
Average occupancy %	73.28	77.52
Average patient stay	12 days	13.7 days
Total patients admitted to Day Care Unit, from March 1973	Not Open	138
Operating room procedures	416	519
Radiation Therapy		
Total patients treated with radiotherapy	1,435	1,408
Total treatment sessions	16,619	16,017
Total radium insertions	153	134
Total patients receiving isotope therapy	31	19
Clinical Laboratory		
Total procedures	91,347	168,422
Diagnostic Radiology		
Total examinations	27,579	26,477
Outside films	23,175	18,883
Patients examined in photographic unit	175	164
Nuclear Medicine		
Total procedures	5,656	6,627

DIAGNOSTIC RADIOLOGY DEPARTMENT

Z. GUTTER, M.D.,
F.R.C.P.(C)
—Director
—Assistant Clinical Professor, Faculty of Medicine, University of Alberta

W. CASTOR, M.D.,
F.R.C.P. (C)
—Senior Radiologist
—Clinical Lecturer, Faculty of Medicine University of Alberta

H. FERRI, M.D.
—Radiologist

S. HAFFKE, M.D.,
C.C.P.S. (Que.)
— Senior Radiologist (1970-1973)
—Clinical Lecturer, Faculty of Medicine University of Alberta

N. HORECZKO, M.D.,
R.C.P.S.(C)
—Senior Radiologist (1968-1972)
—Clinical Lecturer, Faculty of Medicine University of Alberta

The Diagnostic Radiology Department provides a service for a large group of out-patients as well as serving needs of the in-patient population of the Cross Institute. In addition to standard radiographic procedures, the department is called upon to perform a number of special techniques particularly appropriate for detecting cancer such as tomography (particularly chest), mammography, lymphangiography and myelography. The Department of Radiology works in close co-operation with the Division of Nuclear Medicine in order to integrate x-ray findings with the results of radio-nuclide imaging techniques. As the philosophy of the Institute is to treat as many patients as possible at home, the Department of Radiology makes a special effort to provide assessment films on the same day as the patients are visiting the out-patient area or the day care area for consideration of therapy. This service enables the clinician to treat patients without undue delay or the need for hospitalization in many cases.

The total number of procedures performed in 1972 and 1973 is approximately equal to the number of procedures in previous years. However, the number of specialty procedures has increased; e.g. in 1972, 1,781 mammograms were performed, while in 1973, the number of mammograms increased to 2,149.

Despite the increase in specialty procedures and the extra demands placed on the department for carrying out new educational and service programs, reorganization of responsibilities and procedures has enabled the department to carry out its task, while at the same time reducing the professional and technical staff.

In 1972 the Cross Institute became a participant in the residency program of the University of Alberta in diagnostic radiology; in June 1973 the Royal College extended official approval to the Institute to provide up to six months' residency training in this specialty. Up to the end of 1973, four residents have spent part of their time training within the Cross Institute while departmental members have presented a number of rounds and seminars for post-graduate students of the Department of Radiology in the Faculty of Medicine.

Improvements and new techniques are being introduced. In 1973, a xerography unit was installed and the department is comparing the results obtained with xerography and standard mammography. At present, it appears that the availability of xerography enhances breast cancer diagnostic accuracy while cutting down on the amount of radiation exposure experienced by patients.

In 1974 the Department of Radiology will be considering the introduction of several new techniques, including thermography and ultrasound. Introduction of ultra-sound techniques will complement and expand the ability of the Diagnostic Radiology/Nuclear Medicine Departments to provide their clinical colleagues with accurate information of the presence and extent of malignant disease, thus facilitating treatment planning.

DIVISION OF NUCLEAR MEDICINE

B. LENTLE, M.D.,
D.M.R.D., F.R.C.P.(C)
—Director

—Assistant Professor, Faculty of Medicine,
University of Alberta

F. JACKSON, M.B.,
Ch.B., D.P.H.,
C.R.C.P.(C) Pub. Health/Diag. Rad.
—Sr. Radiologist

—Clinical Instructor, Faculty of Medicine,
University of Alberta

Using radiotracers, a variety of procedures have recently become available which, allow the clinicians to more accurately define the site and extent of cancer in a patient. Progress in nuclear medicine technology has been associated with the development of tests which are less trying for the patient while yielding more information at less cost.

In 1972 whole body minification scanning was established as a routine procedure using 87 m strontium citrate for bone scanning initially. This material was soon replaced by 99 m Technetium-stannous-polyphosphate and bone scanning of a quality equal to that anywhere in the world became possible. During the initial appraisal of this material when its availability was limited to clinical evaluation, it was possible to demonstrate and publish clear evidence of the superiority of bone scanning in detecting the majority of metastatic cancers involving bone. The polyphosphate was replaced by pyrophosphate in 1973 with the advantages of allowing yet more scans per day at less costs.

Whole body minification scanning of bone marrow and tumor extent were also introduced. Investigation of 67 Gallium citrate had serendipitously resulted in the observation that this material concentrated in many types of tumor. This property has led to the widespread investigation of the material. Experience at the Cross Cancer Institute has indicated that, while not definitive, the material is often a valuable tool in diagnosing tumor site and tumor extent.

Along with the introduction of these procedures has come the widespread application of radio-nuclide angiographic studies along with radio-nuclide lymphangiography. At the same time fundamental changes were also made in the techniques of liver scanning, lung scanning and brain scanning. All of this resulted in an increase in the workload in the department in 1973 by 18% over 1972.

Dr. B. C. Lentle joined the department in early 1972 and an additional technician was appointed in mid-1972. The work load, however, escalated beyond the capacity of the small staff and this shows evidence of becoming further aggravated in 1974. Qualified nuclear medicine technicians are in short supply. This situation has been aggravated by the lack of any viable training program in Alberta. A training program based in Calgary or Edmonton, adequately funded and effectively administered, is essen-

tial if there is to be good quality nuclear medicine in the province.

To keep clinical practice in line with the best nuclear medicine requires support from physicists, and radiopharmacists or radiochemists. Nuclear medicine is inevitably an area in which not only large capital costs but major operating costs are involved. Support in at least one area may be forthcoming from a proposal to establish an Edmonton Radiopharmaceutical Centre. This proposal is being explored by a committee chaired by Dr. Lentle.

Further developments in tumor scanning techniques and the refinement of existing methodology make it likely that nuclear medicine will contribute in considerable degree to the advancement of existing techniques for cancer management. In the future there can also be anticipated to be an increase in the relative importance of laboratory procedures, and in particular radioimmunoassay.

DIVISION OF NUCLEAR MEDICINE — PROCEDURES 1971 - 1973

		<u>1971</u>	<u>1972</u>	<u>1973</u>
Liver and spleen scan	99m TC-Sulfur colloid	3066	2882	3422
Colloid trapping index		0	30	72
Blood clearance and liver scan	131 I-Rose bengal	7	16	15
Hepatic and splenic dynamic studies		0	32	40
Pancreatic scan	75 Se-Selenomethionine	48	14	56
Brain flow and scan		837	673	377
Lung scan		423	237	43
Liver/lung scan		4	3	1
Bone scan	87m Sr-Citrate	120	122	0
	99m Tc-Polyphosphate and analogues	0	346	1179
Bone marrow scan	99m Tc-Sulfur colloid	0	11	18
	111 In-Chloride (transferrin)	0	0	10
Radio-nuclide lymphangiogram		0	0	2
RISA cisternogram or myelogram		2	6	2
Renogram	131 I-iodohippuran	153	129	79
Renal scan	131 I-iodohippuran	18	12	16
	202 Hg-chlormerodrin	22	21	4
	99m Tc-iron ascorbate	0	2	16
99m Tc-pertechnetate	99m Tc-pertechnetate	31	15	38
Thyroid uptake and scan		159	142	92
Thyroid metastatic survey			19	6
Parathyroid scan	75 Se-selenomethionine	5	1	14
Tumor scan	75 Se-selenomethionine	0	2	6
	67Ga-citrate	0	0	215
Eye tumor localization	32p	0	0	6
Radio-nuclide angiogram	99m Tc-pertechnetate			
Superior venacava		0	85	87
Cardioscan		1	7	9
Other		0	14	41
Scan for Meckel's Diverticulum		0	0	11
Blood volume		12	24	18
Red cell survival		3	3	2
Splenic sequestration		2	3	2
Therapeutic procedures		5	28	19
Totals including other procedures not detailed		5139	5656	6677

In 1972, 10% and in 1973, 9.6% of procedures were carried out on patients referred from elsewhere without malignant disease.

GYNECOLOGY DEPARTMENT

L. B. BROWN, M.D.,
F.R.C.S.(C)

—Director

—Clinical Professor, Faculty of Medicine
University of Alberta

Interdisciplinary clinics for all types of gynecologic malignancy are now in operation. In addition to the follow-up clinics, bi-weekly joint consultative clinics with both a gynecologist and radiotherapist in attendance are held for assessment and evaluation of new patients and for re-assessment of patients with persistent or recurrent disease. One clinic is devoted to the management of patients with advanced ovarian cancer. In 1973, a study assessing Cyclophosphamide and 5-Flourouracil in various treatment regimes was completed and the clinic has now entered a new chemotherapy study in conjunction with the Eastern Co-operative Oncology Group. It is planned to expand this clinic to study the use of chemotherapy in other types of advanced gynecologic malignancy.

With regard to total clinic load, in 1973 there were 394 new cases of malignancy registered with the Clinic, which represents an increase of 52 over the preceding year of 1972. These have been broken down into site, as follows:

Vulva	6
Endometrium/Uterus	81
Cervix	
Invasive	63
In situ	197
Ovary	46
Chorionepithelioma	1

During the past year, an effort has been made to encourage patients with carcinoma in situ of the cervix to receive their follow-up from their family physician or gynecologist. This transfer of responsibility has resulted in a decrease in the routine Institute visits for these patients.

A total of 2,078 follow-up visits were carried out during 1973, involving a total of 1,159 patients. Of these visits, 462 were concerning carcinoma of the ovary and the majority of these were visits to the ovarian chemotherapy clinic.

The gynecology clinics have been successfully used for resident training. In addition, residents have completed reviews on endometrial cancer in northern Alberta and on carcinoma in situ of the cervix; these studies have been presented at medical meetings in Calgary and Edmonton.

MEDICAL PHYSICS DEPARTMENT

S. R. USISKIN, Ph. D.

—Director

—Honorary Associate Professor, Faculty of
Medicine, University of Alberta.

J. W. SCRIMGER, Ph. D.

—Senior Medical Physicist

—Honorary Assistant Professor, Faculty of
Medicine, University of Alberta

There has, in recent years, been a vigorous interaction between the sciences of physics and biology. One of the aspects of this is the increasing use of physical tools in medicine.

Medical physics is an applied branch of physics. While contributions to all branches of medicine can be foreseen by the application of the concepts, methods, and forces of physics, there are three areas of medical specialty practised in cancer centers where these contributions have been proven. These are Radiotherapy, Nuclear Medicine, and Diagnostic Radiology.

It is because these specialities utilize a physical agent, radiation, that the application of physics has been so successful in promoting advances in technique.

As a contribution to the service role it plays in this Institute, the Medical Physics Department fabricated or repaired major pieces of apparatus within its workshop. Among these were:

- a styrofoam cutter designed to provide accurate shapes and positions of lead blocks for shielding in radiotherapy,
- a mobile transparent table for use in mammography,
- major overhaul of the couch lifting ram on the linear accelerator,
- the production of a grid to be used in localization of areas of interest and areas to be shielded in radiotherapeutic treatments.

The Treatment Planning Section of the Physics Department is involved in determining the optimum method of delivery of radiation to a dose prescribed by the radiotherapists.

They performed over 1200 special calculations in this manner during this period. Each calculation is the end stage of the time-consuming effort of collecting physical data relevant to the individual patients.

Accurate delivery of the radiation is ensured by the fabrication of beam directing devices. This entails the production of a cast of the patient in order to fit a device to that particular patient. This device ensures that the radiation will be directed at the patient in the manner called for in the treatment plan.

Weekly checks on the output of the radiotherapy machines are performed. Continual monitoring of the radiotherapy machines to eliminate the possibility of error is also provided.

Assessment and control of radiation, mechanical, and electrical hazards is a continuing process.

Preventive maintenance is performed on all therapy units on a routine basis as well as some aspects of maintenance of the equipment in Nuclear Medicine and Diagnostic Radiology.

The role of the professional members of the Physics Department in the field of education has increased. In addition to the didactic lectures given to student radiotherapy technicians, a lecture series was instituted for the radiotherapy residents, and the Physics Department members continued to play an active role in the teaching of physics at the undergraduate level at the University of Alberta.

During this period two graduate students completed their requirements for an M.Sc. degree under the guidance of members of the Physics Department. This entailed a research program for each of them.

The Physics Department of the Institute played host to the Medical and Biological Physics Division of the Canadian Association of Physicists when the C.A.P. held its annual meeting in Edmonton. A number of papers were read at this meeting by members of the department.

Our association with TRIUMF was maintained by our representation at the annual meeting and efforts to increase our involvement in pion-meson use were undertaken.

DEPARTMENT OF MEDICINE

T. A. McPHERSON, M.D.,
F.R.A.C.P., Ph.D.
—Director

—Associate Professor, Faculty of Medicine,
University of Alberta

A. KHALIQ, M.B.,
F.R.C.P. (C)
—Physician

—Honorary Clinical Lecturer, Faculty of
Medicine, University of Alberta

R. NEIL MacDONALD, M.D.

F.R.C.P.(C)

—Physician

—Professor, Faculty of Medicine,
University of Alberta

M. DROZD, M.D.

—Ward Physician (1972)

—Medical Oncology Fellow (1973)

S. KATAKKAR, M.D.

—Medical Oncology Fellow (1974)

M. B. MUSA, M.D.

—Ward Physician (1974)

A. E. NETT, B.Sc., M.D.

—Clinical Assistant/Ward Physician (1968-73)

J. E. PEDERSEN, B.Sc., M.D.

—Ward Physician (1973)

E. SALTER, M.D.

—Clinical Assistant/Ward Physician

B. SECTER, M.D.

—Clinical Assistant

S. YOSHIDA, M.D.,

F.R.C.P.(C)

—Senior Resident Physician (1974)

M. KOCH, M.D.

—Research Associate

A. SHAW, Ph.D.

—Research Associate

J. COATES, Ph.D.

—Post-doctoral Fellow, M.R.C. of Canada

C. W. HUANG, Ph.D.

—Post-doctoral Fellow, N.C.I. of Canada

The duties of the Department of Medicine fall into the following categories:

1. Medical and Medical Oncology:

(i) Care of in-patients and out-patients with malignancy

(ii) Education — medical undergraduate, medical, post-graduate doctoral, post-doctoral, nursing and paramedical and lay.

(iii) Clinical — applied and basic research.

The activities of the department are conducted by a small full-time staff working with a large part-time staff drawn from the hospitals in the Edmonton region.

During 1972, the Department of Medicine collaborated with the other clinical departments

in interdisciplinary clinics concerned with care of patients with carcinoma of the breast, lymphoma, hematologic malignancies, and gastrointestinal disease. In addition, the department was involved in the Peripheral Clinics responsible for diagnosis, treatment recommendation, and follow up of patients with malignancies seen outside the Cross Institute in northern Alberta.

Commencing in 1972, the educational role of the Department of Medicine was greatly expanded. The department became responsible for medical undergraduate teaching in general medicine and oncology of Phase III students from the Faculty of Medicine on a regular monthly rotational basis. During their rotation in the Institute, the students are responsible for the admission of in-patients and the general investigation and treatment of these patients under the supervision of ward resident staff and attending physicians. In addition, several undergraduates have taken elective programs in oncology at the Cross.

Training of radiotherapy residents in internal medicine was provided for two residents over six-month periods as part of their radiotherapy residency. In addition, residents in infectious disease and other medical subspecialties see patients at the Cross in the course of their training programs.

In 1973, funds were obtained from the Canadian Cancer Society (Alberta Division) to support a clinical fellowship program in medical oncology. This program will enable the Institute to provide special training in chemotherapy and immunotherapy for Alberta physicians. The first clinical fellow commenced training in July of 1973.

In addition to undergraduate and graduate medical training programs, the members of the Department of Medicine were actively involved in educational projects for the practicing physician, the nursing profession, paramedical personnel and private organizations. The department sponsored symposia on Childhood Acute Leukemia and Gastrointestinal Cancer. Participation included provincial practitioners, as well as invited guests from Canada, the United States and England. Numerous presentations were made by members of the department to physician groups, nurses, other medical personnel, and lay organizations, including presentations to lay audiences, meetings, and to radio and television, on behalf of the Canadian Cancer Society (Alberta Division).

In January of 1973, the Research Laboratory of the Cross Institute was opened. Initial support has been provided by the Provincial Government, the National Cancer Institute, the Cana-

dian Cancer Society, and private donations, most notably the Edmonton Police Force.

The initial research program is centered on studies in tumor immunology. Research projects conducted at the Research Laboratory at the Cross Institute include the following:

1. Labelling of anti-tumor specific anti-body with radioisotopes in an attempt to localize tumors in cancer tissue by detection of radioactivity in tumor tissue as compared to normal tissue. The eventual hope of this project is localization of tumor tissue in man to enable more thorough assessment of the extent of cancer prior to treatment.
2. Identification of a tumor specific antigen (carcinoembryonic antigen; CEA) in blood products as an aid in the diagnosis and monitoring of cancer. Two methods are currently being employed for the detection of CEA. One, a commercially available method known as the Z-gel assay, and the other, a method developed in this laboratory known as solid phase radioimmunoassay.
3. Studies directed at detecting sensitization of blood lymphocytes in patients with cancer to another tumor specific antigen (tumor basic protein). This study involves the isolation of a basic protein from tumors followed by incubation of lymphocytes from patients with cancer with the tumor basic protein and eventual assay of products released from this incubation procedure under cell electrophoresis conditions using migration of cells as a marker. It is hoped that this assay may be useful as a marker of cancer, but more importantly, that the tumor basic protein might turn out to be a "universal tumor specific antigen" which can be used to develop methods for diagnosis and localization of cancer in man.
4. Studies involving tissue culture of tumors in test tubes and the analysis of lymphocyte effects from patients with different stages of cancer on the growth of these tumors in tissue culture. An analysis of the effects of lymphocytes and serum from patients with different stages of cancer may be helpful in determining the prognosis of that patient and also in rationalizing the type of treatment most likely to be effective in that tumor at that stage of development.

The direct goal of the tumor immunology projects in the Research Laboratory at the Cross Institute is the application of known laboratory methods to the diagnosis, monitoring, and treatment of patients with cancer. We hope to apply various laboratory techniques developed in more basic research

settings to the problem of cancer as it is diagnosed and treated in the Cross Institute.

In addition to the studies undertaken at the Research Laboratory of the Cross Institute, several important collaborative projects are underway involving the Department of Medicine of the Cross Institute and the McEachern Laboratory. These include:

- (a) The isolation of white cells by the white cell separator and comparison of enzyme patterns in normal and leukemic white cells.
- (b) Early stage drug studies to determine the effects of experimental drugs on malignancy in man.
- (c) Later stage drug trials to test different combinations of drugs in cancers resistant to conventional therapy.
- (d) Analysis of the effect of certain drugs on tumor cells under laboratory conditions as related to the presence of absence of activator enzymes in the tumor cells as compared to normal cells.

DIVISION OF PAEDIATRICS

J. AKABUTU, M.D.,
—Director

—Assistant Professor, Faculty of Medicine
University of Alberta

In 1973 the Division of Paediatrics within the Department of Medicine was established under the direction of Dr. John Akabutu. Dr. Akabutu is the only full-time member of the division but he is assisted by community practitioner, Dr. Gordon Selby.

The division operates an out-patient total care facility for children with malignancies in northern Alberta. The Childhood Cancer Clinic is multi-disciplinary involving Dr. Akabutu, Dr. Gordon Selby and Dr. David McGowan of the Department of Radiotherapy at the Cross Institute. At the end of 1973 approximately 65 children with cancer were being followed by the Division of Paediatrics.

Research interests of the division are: cell kinetics in the management of the acute leukemias, 2) neutrophil physiology related to infections, 3) levamisol trial in acute leukemia of childhood.

The clinic is regularly attended by residents in the Department of Paediatrics of the University of Alberta and by medical students attached to that department.

Childhood leukemia represents one of the areas

where major advances have been made in the past decade. For example, acute leukemia in childhood was uniformly regarded as a fatal disorder in the past; at the present time evidence exists that the treatment of children with acute leukemia, utilizing complex and potentially dangerous chemical agents, enables a significant proportion of children to live for many years and possibly to be cured. During 1974 the Division of Paediatrics will present a proposal which will serve as a blueprint for the development of services for children with cancer in northern Alberta over the next decade. It is the anticipation of the division that the extraordinary benefits to be gained by enabling children with cancer to have access to sophisticated care justify approval of proposals to come forward during the forthcoming year.

RADIOTHERAPY DEPARTMENT

J. G. PEARSON, M.B.,
Ch.B., F.R.C.S.,
F.F.R., F.R.C.P.(C)
—Director
—Professor, Faculty of Medicine
University of Alberta

P. E. BURNS, M.B.,
Ch.B., D.M.R.T.
—Senior Radiotherapist
—Assistant Professor, Faculty of Medicine
University of Alberta

G. GLAZEBROOK M.B.,
B.S., M.R.C.P.,
F.F.R., F.R.C.P.(C)
—Associate Director
—Associate Professor, Faculty of Medicine
University of Alberta

D. G. MCGOWAN, M.B.,
Ch. B, D.M.R.T.,
F.R.C.P.(C)
—Senior Radiotherapist
—Assistant Professor, Faculty of Medicine
University of Alberta

M. MATAR, M.B., B.S.,
M.C.R.A., F.R.C.P.(C)
—Senior Radiotherapist (1969-1972)
—Assistant Clinical Professor, Faculty of
Medicine, University of Alberta

R. C. URTASUN, M.D.,
F.R.C.P.(C)
—Senior Radiotherapist
—Associate Professor, Faculty of Medicine
University of Alberta

J. LAU, M.B., B.S.
—Resident (1974)

J. LEYTON, M.B., B.S.
—Resident (1973-1974)

A. NETT, B.Sc., M.D.
—Resident (1974)

J. PEDERSEN, B.Sc., M.D.
—Resident (1974)

The Department of Radiotherapy has five full-time staff members who are responsible for providing all radiotherapy for more than one half of all cases of cancer in northern Alberta, while also providing a consultation service in general oncology for many other patients with cancer or suspected malignant disease. A broad clinical oncological base is necessary for the effective practice of radiotherapy. The members of the department believe that wide participation in interdisciplinary clinics, interhospital study groups and the development of active educational and research programs contribute to this end.

In 1972 the reorganization of the out-patient area allowed radiotherapists to increase their collaborative work with surgical and medical colleagues in an enlarged series of interdisciplinary clinics. These clinics provide an excellent environment for consultation over patients and fruitful exchange of ideas. While requiring a heavier commitment in time, the opinion formulated by joint consultation in the Clinic can be more valuable than that provided by any given specialist working in isolation.

Radiotherapists are the physicians primarily responsible for staffing the Peripheral Clinics, providing immediately available consultations and follow-up services for patients and physicians in Peace River and Grande Prairie; and in the future, Red Deer. In addition the Department of Radiotherapy is responsible for the in-patient care of an average of 40 patients at any one time.

The educational responsibilities of the department encompass technician training together with undergraduate and postgraduate medical teaching. The school of therapeutic radiology technicians, under the capable direction of Mrs. Gwenyth Caldwell has recently been formally reviewed and is fully accredited by the Canadian Medical Association, the Canadian Association of Radiologists, and Canadian Society of Radiological Technicians. The program was reorganized in 1973 and is now carried out completely within the Institute. At the end of 1973, there were 3 senior and 4 junior students in training.

Lectures are given in the medical undergraduate course; the department also sponsors radiation therapy electives for medical students. At the end of 1973, 9 students had spent a month in the department on electives; other Phase III students visit the Department of Radiotherapy for shorter periods as part of their elective program in Diagnostic Radiology.

Residency Training

A residency training program in Therapeutic Radiology commenced on January 1, 1973. The activation of this program is particularly gratifying when seen in the context of what is happening across the rest of Canada, in the United States and elsewhere. A critical shortage of radiotherapists exists and this can no longer be relieved by recruitment from abroad. Albertans must be attracted for training in radiotherapy to rectify the present undesirable situation wherein every radiotherapist in Alberta (and most of the radiotherapists across Canada) is foreign born and foreign trained.

By the end of 1973, 2 residents were in training. It is anticipated that 4 residents will be in training by July of 1974.

Manpower and Equipment

A series of studies on radiotherapy manpower in North America indicates that the current complement of radiotherapists in northern Alberta is not yet adequate. As indicated above, recruitment from abroad is increasingly difficult and steps are being taken to attract and train local graduates. However, an immediate shortage exists which must be solved lest the radiotherapy program be jeopardized. Appropriate representations to the Provincial Cancer Hospitals Board and to the Minister of Health have been made with suggestions for rectifying the situation.

The equipment within the Radiotherapy Department continues to improve. An eight million volt linear accelerator was commissioned in 1972. Now approximately one quarter of the major radiotherapy treatments is carried out on this unit. In 1974, a simulator and a dedicated computer for radiotherapy treatment planning were commissioned.

Dr. Brown from the Calgary Clinic and Dr. Pearson are preparing a Position Paper on Radiotherapy Needs in the Province of Alberta which will serve as a blueprint for development of the two Radiotherapy Departments during the next five years. It is anticipated that this paper will be submitted to the Hospital Services Commission and to the Minister of Health during 1974.

Research

Through financial support provided by the Provincial Cancer Hospitals Board and the University of Alberta, the department has established a research program in the areas of radiobiology, immunology, radiotherapy technology, and clinical research.

Dr. Raul Urtasun has carried out studies on radiation damage and repair in mammalian tumor cells with the assistance of Mr. Jack Sturmwind. At present, Dr. Urtasun is studying the effect of certain radiosensitizers on tumor cells. If it proves possible to effect the selective radiosensitization of the normally radioresistant anoxic fraction of tumor cells the need for cumbersome and expensive devices such as hyperbaric oxygen chambers and various sources of high energy ionizing particles may be eliminated.

Dr. Urtasun is also carrying out immunologic studies on human sarcomas and is engaged in clinical investigation of brain cancer. A program of investigation on the value of surgery and radiation therapy in the treatment of grade III & IV astrocytomas which Dr. Urtasun is carrying out in co-operation with Dr. Bryce Weir, his neurosurgical colleagues, and Dr. Band, Dr. McLean and Dr. Mielke is nearing conclusion. The interim results of these studies have been presented at a number of medical meetings.

Dr. George Glazebrook has developed an after-loading technique for the intra-cavitary irradiation of carcinoma of the cervix and carcinoma of the body of the uterus. This system is rapidly gaining acceptance and offers great advantages from the point of view of protection of staff from radiation.

Dr. Patricia Burns and Dr. David McGowan are active participants in the interhospital breast cancer study group from which a number of clinical research programs are evolving.

SURGERY DEPARTMENT

A.B. McCARTEN, M.D.,
F.R.C.S.

—Director

—Assistant Clinical Professor, Faculty of
Medicine, University of Alberta

During 1972 and 1973, interdisciplinary clinics with surgical representatives working side by side with medical and radiotherapeutic colleagues were developed for patients with cancer of the breast, G. I. malignancy, neck tumors and malignant melanoma. These study panels made up of representatives from each of the Edmonton acute care hospitals and from certain out-of-town hospitals provide a forum for development of a co-ordinated plan for treatment and clinical research on specific types of cancer. A special "Pain Clinic" was also instituted to provide advice and management on difficult problems, and to evaluate new techniques for controlling pain in patients with malignant disease.

Over 60 surgeons in the Edmonton district participate as active members of the Cross Institute clinic staff. Their participation has guaranteed the success of the interdisciplinary concept and has enhanced communication between the full-time staff of the Cross Institute and their colleagues in other hospitals.

The breast cancer study group has designed a protocol for investigation and examination for all new cases of cancer of the breast. This information is available in a form suitable for computerization and easy retrieval.

CALGARY CANCER CLINIC

Alberta

Calgary Cancer Clinic Medical and Scientific Staff

Director — FRANCIS, DR. J. R.

DEPARTMENT OF DIAGNOSTIC RADIOLOGY

Director

— FLORENDINE, DR. D. G.

DEPARTMENT OF MEDICAL PHYSICS

Active Staff

FUNG, G.
O'BRIEN, P.

DEPARTMENT OF NUCLEAR MEDICINE

Active Staff

ARNOLD, DR. R.

DEPARTMENT OF RADIOTHERAPY

Director — BROWN, DR. I. S.

Active Staff

BARNES, DR. M.
ENNS, DR. A. G.
VAN DERLUBBE, DR. N. E. A.

CONSULTANT CLINICAL STAFF

ATTISHA, DR. R.
BARNES, DR. P.
BEHM, DR. A.
BUIE, DR. W. J.
CAMPBELL, DR. W. N.
CHIPPERFIELD, DR. W. G.
CHURCHILL, DR. B. M.
DALE, DR. C.
ENTA, DR. T.
FERGUSON, DR. I. A.
GILLESPIE, DR. J. D.
GRACE, DR. D. A.
GRISDALE, DR. W. R.
GROVES, DR. T.
HACKEMANN, DR. M.
HANSLIP, DR. A. R.
HARSE, DR. H. R.
JANKE, DR. E.
KETCHESON, DR. R. B.

MACGREGGOR, DR. D. J.
MCCULLOCH, DR. C. F.
MCKERCHER, DR. L. A.
MAH-POY, DR. G. L.
MALLEN, DR. P. R.
MITCHELL, DR. L. I.
MORTIS, DR. E. A.
NATION, DR. E. W.
NOAKES, DR. J. A.
POW, DR. R. E.
REMINGTON, DR. D. W.
RETZER, DR. O.
ROBB, DR. W. A.
ROE, DR. R.
RUETHER, DR. B. A.
SINGH, DR. R. R.
SPACKMAN, DR. L. F.
TROY, DR. M. T.
TRUSCOTT, DR. D. R.
WAGNER, DR. G. A.
WALLACE, DR. D. S.
WILLIAMS, DR. J. A.
WILSON, DR. A. E.

Note: Full-time members are listed with Departmental Reports.

Medical Director's Report

The Calgary Cancer Clinic serves the southern part of the province as an out-patient and treatment centre along with our counterpart from Lethbridge. It is situated in the central portion of Calgary, adjacent to the Holy Cross Hospital. It functions as an out-patient referral centre, a centre for nuclear medicine investigation, and a radiotherapy centre.

The Out-Patient Clinic operates five days a week. In 1973 there were 1,633 new patients and 10,783 follow-up patients. Of these follow-up patients, some were seen on an annual basis and others as often as weekly for active chemotherapy treatment which was given or directed by the clinicians in the clinic. (These figures do not include radiotherapy visits or visits for diagnostic tests.) The clinic is staffed by 35 specialists, all of whom are in practice in the city of Calgary, who spend at least one-half day a week in the clinic, serving in their own special field. Surgical treatment is carried out in the hospitals in the city of Calgary. The patient is referred back to the clinic following execution of this type of treatment. Similarly,

in-patient medical therapy is also done in the Calgary hospitals. Consultation with a clinical specialist is carried out at frequent intervals. The following table shows the breakdown of the type of patients and the number of patients seen during 1973.

As in Edmonton, the Calgary Clinic supplies chemotherapeutic drugs for patients who require this type of treatment. The drugs are supplied by the Alberta Government to the Provincial Cancer Hospitals Board free of charge. 4,691 prescriptions were filled last year for those patients receiving out-patient treatment under the direction of the clinic consultants.

The Out-Patient Department attendance is increasing by about 10% per year and with the growth of the population it is expected that this will continue.

J. R. FRANCIS, M.D.,
F.R.C.S.(C)
Director

Departmental Reports

OUT PATIENT DEPARTMENT

SITE	NEW PATIENTS	FOLLOW-UP	TOTAL
Breast	492	2,728	3,220
Gastro Intestinal	147	950	1,097
Lymphomas and Leukemias ..	40	881	921
Gynecology	198	1,396	1,594
Musculo-Skeletal	16	130	146
Thoracic	108	399	507
Genito-Urinary	129	600	729
Head and Neck	51	391	442
Neuro	18	71	89
Skin	391	2,928	3,319
Pediatric	8	97	105
Others (incl. Thyroid)	35	212	247
TOTAL	<u>1,633</u>	<u>10,783</u>	<u>12,416</u>

ACTIVITY STATISTICS

	<u>1972</u>	<u>1973</u>
New patients examined (including patients with benign disease)	2,259	2,086
Patients examined in peripheral clinics	896	895
Review patients	14,913	15,158

Radiation Therapy

Total patients treated with Radiotherapy	814	859
Total treatment sessions	13,821	15,452
Total radium insertions	88	99
Total patients receiving isotope therapy	10	21

Clinical Laboratory

Total procedures	24,056	26,867
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Diagnostic Radiology

Total examinations	10,296	11,536
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Nuclear Medicine

Total procedures	1,314	1,465
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DIAGNOSTIC RADIOLOGY DEPARTMENT

D. G. Florendine, B.Sc., M.D.
R.C.P.S.
—Director

The Diagnostic Radiology Department of the Calgary Cancer Clinic exists in close proximity to the clinical areas and follow-up review section. This physical proximity renders most advantageous for clinicians to obtain almost immediate diagnostic radiological decisions, which in turn facilitates the treatment of the patient and expedites management of most cases. This department is relatively small but is equipped to carry out all general radiographic studies, all prime examinations and mammograms, plus gall bladders and IVP's. The department does not carry out any advanced special procedures. However, the department is used extensively by the Radiation Therapy Department for planning radiation fields.

At present, the department is equipped with two major diagnostic x-ray units and one portable machine.

NUCLEAR MEDICINE DEPARTMENT

S. F. NICHOLSON, M.D.
—Radiologist P/T (1973 - 1974)
—Lecturer, Faculty of Medicine
University of Calgary

R. ARNOLD, M.D.,
F.R.C.P.(C)
—Radiologist P/T (1974)
—Assistant Professor, Faculty of Medicine,
University of Calgary

The advantages of nuclear medicine diagnostic procedures in diagnosing cancer have been reflected by the steady increase in the work load of the Department of Nuclear Medicine in the Calgary Cancer Clinic. Through 1972, a 50% increase was noted with a similar rate of increase observed during 1973. In addition to providing a service for the Cancer Clinic, the Department of Nuclear Medicine also performed isotope procedures for the Holy Cross Hospital (immediately adjacent to the clinic) and in certain instances, for patients at other hospitals in the city.

Facilities in the department include a single probe scanner, dual renal probe system and an automatic well counter. A gamma camera is

required in order to meet the current demands upon this department and it is hoped that plans will be completed for installation of the camera by 1974.

MEDICAL PHYSICS DEPARTMENT

G. FUNG, M.Sc.
—Senior Physicist
—Assistant Professor, Faculty of Medicine
University of Calgary

P. O'BRIEN, M.Sc.
—Physicist

In 1972 and 1973 the Medical Physics Department of the Calgary Cancer Clinic carried out routine maintenance and calibration of all diagnostic and radiotherapy equipment within the centre. In addition, the department was responsible for treatment planning, in-situ dosimetric measurements, nuclear medicine instrumentation, and the direction of the machine shop.

During 1972, a new cobalt source was added to one of the radiation therapy units and a new Theratron 80 cobalt unit was installed, together with a teledyne TLD system. In addition, complete programs for performance of isodose plotting for isocentric measurements as well as fixed SSD were developed utilizing the Wang 700 Computer. In treatment planning, 300 localizations, 150 treatment plans, and 70 radium implant calculations were done. The Nuclear Medicine Department was provided with a dual renal probe which was constructed within the Clinic.

In 1973, the 250 KV deep x-ray unit was transferred from the Lethbridge Cancer Clinic to the Calgary Cancer Clinic. The Department of Physics carried out appropriate calibrations, construction, and treatment co-design for this unit. In the treatment planning section, 1,000 localizations, 540 treatment plans, and 300 radium calculations, together with 500 TLD measurements in-situ were carried out. The department is very pleased with the planning system developed on the Wang advanced calculator — plotter unit. Members of the department are particularly interested in the use of computers in treatment planning and in 1974 it is hoped that a specially designated radiation therapy computer facility will be available in the Calgary Clinic.

RADIOTHERAPY DEPARTMENT

I. S. BROWN, M.B., B.S.,

F.R.C.S.(E), F.F.R.,

—Director

—Associate Professor Faculty of Medicine,
University of Calgary

J. M. BARNES, B.M., B.Ch.,

D.M.R.T.

—Senior Radiotherapist

N. VANDER LUBBE, M.B.,

B.S., D.C.R.A.

—Radiotherapist

—Lecturer, Faculty of Medicine,
University of Calgary

The Department of Radiotherapy is concerned with providing radiation therapy treatment for an increasingly large proportion of patients with cancer in southern Alberta and for providing a consultative service in oncology to physicians and patients in Calgary and district. In addition, members of the department participate in the training of radiotherapy technicians, student nurses on rotation from hospitals in Calgary, and medical students. A residency training program for radiotherapists is not in operation in Calgary and the exposure to residents in other medical training programs is limited.

During 1972 and 1973 there was a steady increase in the numbers of radiation therapy treatments administered. The only facet of work which did not show a significant increase were the radium insertions, perhaps forecasting a decline in the incidence of invasive gynecologic lesions related to frequent use of the

Papanicalou test. Unfortunately, the number of advanced cases of cancer of the cervix requiring teletherapy as the main form of treatment remains high in relation to the total numbers of cases; it is distressing that the number of advanced cases in the community of this curable cancer continues to run at a high level.

During the past two years, members of the department have been engaged in planning committees for development of a new Calgary Cancer Centre and for creation of an Affiliation Agreement with the Faculty of Medicine of the University of Calgary.

The increased work load has created extra demands on a clinic which is already seriously understaffed. The situation has been greatly helped by the addition of Dr. Nina Vander Lubbe who joined the Calgary Cancer Clinic in February, 1973. Dr. Vander Lubbe, a graduate of the University of Brisbane who has completed her radiation therapy treatment in Australia and at the M.D. Anderson Hospital in Houston, has made an enormous contribution to the Department of Radiotherapy.

The department has continued to work in close co-operation with the Department of Physics and with the Department of Nuclear Medicine. In 1972, Theratron 80 and Eldorado 8 cobalt units were installed, together with inauguration of deep x-ray therapy utilizing the 250 KV unit transferred from the Lethbridge Cancer Clinic.

A new radiation therapy centre with a large staff is needed in southern Alberta. The functional program for a new centre has been developed and will be submitted to government during 1974. The members of the department look forward to completion of this project.

LETHBRIDGE CANCER CLINIC

Alberta

Lethbridge Cancer Clinic Medical Staff

Director — RICE, DR. D.

AU, DR. C. C. — Internist
BAINBOROUGH, DR. A. R. — Pathologist

LACY, DR. R. A. — Gynecologist
MCCUTCHEON, DR. J. D. — Surgeon

Medical Director's Report

During the year 1973, 340 new malignancies were handled through the clinic; these being divided almost equally (169-171) between Lethbridge and its surrounding districts. There were 40 new breast malignancies encountered. The total population at risk in the Lethbridge Cancer Clinic drawing area is approximately 100,000 people.

A study of all breast cases attending this clinic from 1950 to 1970 was brought to near completion by retrospective pathological re-assessment of all the specimens from these patients; the results are presently being summarized. Dr. Ernest Gnass, Associate Pathologist of the Lethbridge Municipal Hospital, kindly undertook this review and we are in-

debted to him for this rather prodigious effort. He standardized all the diagnosis according to World Health Organization classifications.

An ongoing study of carcinoma of the prostate was begun. The object of this is to determine the efficacy of two different modalities of hormonal treatment of this disease, i.e., the high oestrogen dose versus the low oestrogen dose. This should be completed during 1974.

A clinical impression that there was a higher incidence of carcinoma in those people residing on the north slope of the Hudson Bay Divide (a geographical formation in extreme southern Alberta) was not substantiated on statistical evaluation.

ACTIVITY STATISTICS LETHBRIDGE CANCER CLINIC

	1972	1973
New patients examined (including patients with benign disease)	349	338
Review patients	2,069	2,348

FINANCIAL STATEMENTS

Alberta

Provincial Cancer Hospitals Board

Financial Statements

For The Year Ended December 31, 1972

For The Year Ended December 31, 1973

Revenue and Operating Costs

In 1972, \$3,933,533 or 93% of the Provincial Cancer Hospitals Board operating costs were received directly from the Alberta Hospital Services Commission; in 1973 the A.H.S.C. direct payments were \$4,323,653 or 88% of operating costs.

Wages and fees made up an increasingly high percentage of the total operating costs; in 1972 they were \$3,025,324 or 69% of the total operating costs and in 1973 this rose to \$3,383,037 or 72% of the total operating costs.

RESEARCH AND ENDOWMENT FUNDS

A significant extension of the Provincial Cancer Hospitals Board program was commenced in 1972 with the establishment of a clinical re-

search laboratory and the sponsoring of research in other areas, which was made possible by private subscription, funds from the Government of Alberta and grants from the National Cancer Institute. An indication of the interest and activity in this area is the increase in the Research Fund from \$12,691 in 1971 to \$23,524 in 1972 and \$102,197 in 1973.

There has also been a significant increase in activity in the Endowment Fund from \$26,874 in 1971 to \$30,366 in 1972 and \$66,941 in 1973.

In addition to the normal operating fund, \$26,000 was received from government employment incentive programs in 1972 and a further \$51,000 in 1973. These funds were utilized to finance building maintenance and special projects.

PROVINCIAL CANCER HOSPITALS BOARD

BALANCE SHEET AS AT DECEMBER 31, 1972

<u>ASSETS</u>		<u>LIABILITIES & SURPLUS</u>	
Current		Current	
Cash	\$107,984	Accounts payable	\$193,498
Investments at cost	850,000	Province of Alberta Working capital advance	451,000
Accounts receivable	142,271	Deferred income	<u>322,125</u>
Inventories	88,713		\$ 966,623
Prepaid expense	<u>1,042</u>		
	\$1,190,010		
Fixed		Surplus	
Buildings, equipment, and furniture	1,976,480	Revenue surplus	35,741
		Capital surplus	1,976,480
		Reserve for capital purposes	<u>187,646</u>
			2,199,867
Trust		Trust	
Cash	14,876	Accounts payable	884
Investments	64,000	Medical fees equity	26,619
Accounts receivable	985	Research fund equity	23,524
Equipment	1,492	Endowment fund equity ...	<u>30,366</u>
	<u>81,353</u>		<u>81,353</u>
	<u>\$3,247,843</u>		<u>\$3,247,843</u>

PROVINCIAL CANCER HOSPITALS BOARD

BALANCE SHEET AS AT DECEMBER 31, 1973

<u>ASSETS</u>		<u>LIABILITIES & SURPLUS</u>	
Current		Current	
Cash	\$214,766	Accounts payable	\$193,540
Investments at cost	550,000	Province of Alberta Working capital advance	451,000
Accounts receivable	88,663	Deferred income	<u>362,055</u>
Inventories	120,912		\$1,006,595
Prepaid expense	<u>6,083</u>		
	\$ 980,424		
Fixed		Surplus	
Buildings, equipment and furniture	2,254,409	Revenue deficit	(26,171)
		Capital surplus	<u>2,254,409</u>
			2,228,238
Trust		Trust	
Cash	64,011	Accounts payable	2,492
Investments	128,000	Medical fees equity	24,962
Accounts receivable	3,089	Research fund equity	102,197
Equipment	1,492	Endowment fund equity ...	<u>66,941</u>
	<u>196,592</u>		<u>196,592</u>
	<u>\$3,431,425</u>		<u>\$3,431,425</u>

PROVINCIAL CANCER HOSPITALS BOARD
STATEMENT OF REVENUE AND EXPENDITURES
FOR THE YEAR ENDED DECEMBER 31, 1972

Revenue		
Contributions under the Hospitalization		
Benefits Plan:		
Basic operating payments	\$3,021,335	
Organized out-patients	789,720	
Equipment and renovations	120,478	
Special payments	<u>2,000</u>	\$3,933,533
General services, including wards and rooms		90,593
Special services and service departments		73,364
Interest income		48,072
Miscellaneous		<u>24,643</u>
Total revenue		4,170,205
Expenditures:		
Salaries, wages and fees	3,025,324	
Supplies and direct expenses	1,045,271	
Equipment and renovations	<u>129,861</u>	4,200,456
Operating deficit for the year		<u>\$ 30,251</u>

PROVINCIAL CANCER HOSPITALS BOARD
STATEMENT OF REVENUE AND EXPENDITURES
FOR THE YEAR ENDED DECEMBER 31, 1973

Revenue		
Contributions under the Hospitalization		
Benefits Plan:		
Basic operating payments	\$1,334,597	
Organized out-patients	2,906,055	
Equipment and renovations	79,377	
Special payments	<u>3,624</u>	\$4,323,653
General services, including wards and rooms		130,506
Special services and service departments		52,408
Interest income		45,429
Miscellaneous		<u>41,507</u>
Total revenue		4,593,503
Expenditures		
Salaries, wages and fees	3,383,037	
Supplies and direct expenses	1,156,009	
Equipment and renovations	<u>355,477</u>	4,894,523
Operating deficit for the year		<u>\$ 301,020</u>

NOTE TO FINANCIAL STATEMENTS

Note: Operating deficit for the year ending 1973: Included in the deficit of \$301,020 is the amount of \$276,100 which is the excess of equipment purchases not reimbursed under the Alberta Hospital Plan. The true operating deficit was \$24,920.

DONATIONS AND BEQUESTS

ENDOWMENT FUND

1972	\$ 100.00
Mr. W. A. Chandler	100.00
Mr. John DeWacht	100.00
Mr. G. S. Johnston	100.00
The Keomi Club	100.00
Misericordia Medical Staff Trust Fund	300.00
Mrs. J. A. Moore	150.00
South Edmonton Lions Club	203.00
Southgate Shopping Centre	200.00
Miss Alice Wong	<u>2,497.00</u>
Sundry amounts under \$100 each	\$ <u>3,850.00</u>

1973	
Keomi Club	100.00
Estate of Mrs. H.C.S. McDougal	840.00
Estate of Mrs. E. McLean	200.00
Order of the Royal Purple	150.00
Estate of A. R. Phillipon	100.00
Estate of A. Ritchie	4,324.00
Mr. & Mrs. W. L. Ritchie	300.00
Southgate Shopping Centre Ltd.	154.00
St. Mathews Evangelical Church	206.00
Sundry amounts under \$100 each	<u>4,447.00</u>
	\$ <u>10,821.00</u>

RESEARCH FUND

1972	
Mr. R. G. Ades	\$ 100.00
American Women's Club of Edmonton	300.00
Southgate Shopping Centre Ltd.	142.00
P.C.H.B. Endowment Fund	704.00
Sundry amounts under \$100 each	<u>236.00</u>
	\$ <u>1,482.00</u>

RESEARCH FUND

1973	
Mr. & Mrs. R. Allen	\$ 100.00
Edmonton Police Benevolent Society	9,000.00
Fraternal Order of Eagle	1,000.00
Mr. H. Gloge	2,000.00
Mr. E. E. Jackson	5,000.00
Sgt. R. L. James	357.00
Mr. A. Lechelt	500.00
Mrs. M. Moore	1,000.00
Dr. F. Scott	500.00
Mr. & Mrs. W. C. Sims	100.00
Storer Holdings Ltd.	100.00
P.C.H.B. Endowment Fund	1,684.00
Sundry amounts under \$100 each	<u>3,483.00</u>

RESEARCH GRANTS

1972	
Government of the Province of Alberta	\$ <u>15,000.00</u>
1973	
Canadian Cancer Society (Alberta Division)	\$ 25,000.00
Department of National Health & Welfare	2,686.00
Government of the Province of Alberta	55,000.00
National Cancer Institute of Canada	<u>23,140.00</u>
	<u>\$105,826.00</u>

Research and Development Department Report

RESEARCH AND DEVELOPMENT DEPARTMENT

M. GRACE, Ph.D.

—Director

—Associate Professor, Faculty of Medicine
University of Alberta

During 1972 the Statistics Department of the Provincial Cancer Hospitals Board expanded from a department whose only purpose was to collect cancer statistics to one which had a wider scope of responsibility in service and research. Responsibility of the Statistics Department to collect cancer statistics for Alberta and to publish them in a report which provides a pool of information useful for physicians and public health planners is being continued. However additional responsibilities have been assumed in the following areas.

1. Responsibility for the design and implementation of the Cancer Data Centre. The centre in addition to its statistical function will co-ordinate a following program for cancer patients between the cancer centres and physicians throughout the province.
2. Provision of assistance to physicians in the design and analysis of research projects.
3. Studies on those factors which determine the frequency distribution of cancers within the population of Alberta by means of epidemiologic studies.
4. Research in the areas of patient care and treatment. Studies in this area include establishment and evaluation of better and less disruptive means of delivering health care for patients with malignancies.

Computerized Information System

During 1972 and 1973 a proposal for the development of a computerized cancer registry system was completed. Assistance for this project has been provided by the Alberta Hospital Services Commission and by means of a National Health Grant from the Federal Government.

The first phase of this system (the patient identification system) is nearing completion. In consultation with the Government Data Centre the necessary program has been finalized and the various procedures necessary to the

proper function of this system have been developed. Most of the patient information has been transferred onto computer tapes utilizing coders and keypunchers hired through the Priority Employment Program and the Summer Temporary Employment Program.

The department has developed a "Patient Registration Record" which will be used routinely by physicians in the registration of cancer patients. This form was designed following a pilot project involving the co-operation of 150 doctors in the Province of Alberta.

In 1974 it is expected that the payment for cancer services will be transferred to the Alberta Health Care Insurance Commission. A close liaison with the A.H.C.I.C. was developed to establish computer programs which will enable the Provincial Cancer Hospitals Board to assure full registration of cancer patients.

Research Activities

During the past two years the department has carried out or assisted in a number of epidemiologic and statistical studies. Notable examples are:

1. Study of Parity and Its Relation to Cancer Development
The study was conducted by the National Cancer Institute of Canada throughout Alberta, Saskatchewan and Manitoba. The study hypothesizes a relationship, through immune mechanisms, between parity and cancer of several different sites. Data collection has been completed during 1973.
2. Cancer of the Colon and Rectum
A retrospective study of colon cancer covering the years 1961 - 1963 was completed in the summer. The study examines the value of routine follow-up of colon cancer. Suggested preliminary results has led to the extension of this study to cover the years 1964-70.
3. Brain Protocol Study
The study is a controlled clinical trial designed to determine the effectiveness of different therapeutic procedures employed in the treatment of patients with astrocytomas. The department is assisting the physicians involved in this trial with an analysis of clinical data. Other projects which have been completed or in which the department is currently involved are as follows:

RESEARCH AND DEVELOPMENT STUDIES COMPLETED IN '73

DR. BAIN
1969 Hodgkins disease

DR. BASKERVILLE
Effects of infection on bronchogenic cancer and patient survival time

DR. BECK
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DR. BOWES
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DR. BROWN
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DR. BUCKLE
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DR. EID
Prostate study — survival rates

DR. FRASER
Blood pressure study — 50 cases all male

DR. FRIESEN
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DR. FRIESEN
Myocardial infarction — for groups with CAD, CAD with Akinesia, CAD with Hypokinesia

DR. GLAZEBROOK
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DR. HAMMOND
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DR. HERGOT
Rx of Ca oesophagus

DR. KING
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DR. LEE
Breakdown by age and sex for each year for all parts of the intestine from Caecum to anal canal

MR. LIESNER
Interpreting an exposure formula for Agfa equidensity film

DR. LITTLE
Incidence of cancer in children — 14 years and under.

DR. LYNN-DAVIES
Effect to lung volume on EMG activity

DR. MANT
Protamine sulphate test. The importance of adding an inhibitor of fibrinolysis of the test plasma

DR. MASSE
Three — five year survival of lymphoma cases

DR. T. MILLER
Incidence of vagina and cervix uteri cases

DR. MacDONALD
Incidence of Breast Ca in Eskimos and Indians

DR. MacDONALD
Incidence of Leukemia in children

DR. MacDONALD
Retrospective look at acute leukemia cases with special attention to survival rates, Rx & treating physicians

DR. MacDONALD
Types of breast surgery done in '72

DR. McCARTEN
Ca of the oesphagus — study of the treatment and survival rates for differing types of Ca in this area

DR. McGOWAN
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DR. McPHERSON
M.S. in guinea pigs study

DR. McPHERSON

Ca tests on selected malignant colo-rectal cases & multiple sclerosis

MR. PRESTON

Incidence of alcohol and tobacco users among head and neck cases 53-70

DR. SALMON

Surgical bypass

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Thyroid function in chronic patients receiving chronic haemodialysis

DR. SILVERBERG

Study on young school children for the detection of a serious kidney condition

DR. SILVERBERG

Blood pressure comparisons

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STEP evaluation for Prov-Gov't

MR. TOURIGNY

Information on patients from Red Deer and district

DR. URTASUN

Furadantin — anti-bacteria drug to combat infection in Ca Bladder '66. 58 cases

DR. WEINSTEIN

Effects of prospectively induced foliate deficiency on the human small intestinal mucosa

DR. WEINSTEIN

Cell proliferation and kinetics in the human gastrointestinal tract

DR. WEINSTEIN

As above only Diurnal rhythm

PRESENTATIONS AND PUBLICATIONS

Alberta

Presentations of the Professional Staff

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MacDONALD, R. Neil: The Role of the Cancer Service in the Health Care Delivery System.

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ALBERTA CANCER STATISTICS — 1973

The logo for the province of Alberta, featuring the word "Alberta" in a stylized, bold, sans-serif font. The letter "A" is unique, composed of two vertical bars of different heights. The logo is white and set against a dark background.

SOURCES OF INFORMATION

	1973 NUMBER	1973 % of TOTAL
New Registration	4839	84.5
Pathology Reports Only	552	9.6
Vital Statistics Only	336	5.9
TOTALS	5727	100.0

MALIGNANT CASES

	%Change (+ increase) 1970 (- decrease)		%Change (+ increase) 1971 (- decrease)		%Change (+ increase) 1972 (- decrease)		1973
New malignant cases referred to Clinics	3833	6.8	4093	3.8	4247	6.5	4523
Cases who developed a second malignancy	251	-15.1	213	14.5	244	29.5	316
Total new malignancies	4084	5.5	4306		4491	7.8	4839
Non-registered malignant cases by							
Pathology and autopsy report	594	- 3.2	575	-19.5	463	19.2	552
Reported by Vital Statistics	252	6.7	269	20.4	324	3.7	336
Total non-registered malignant cases	846	N/A	844	- 6.7	787	12.8	888
Total number of new malignant cases discovered in Alberta	4930	4.5	5150	2.5	5278	8.5	5727
Cases treated elsewhere reporting to clinics	239	12.1	268	14.5	307	18.6	364

POPULATION DATA - (IN THOUSANDS)

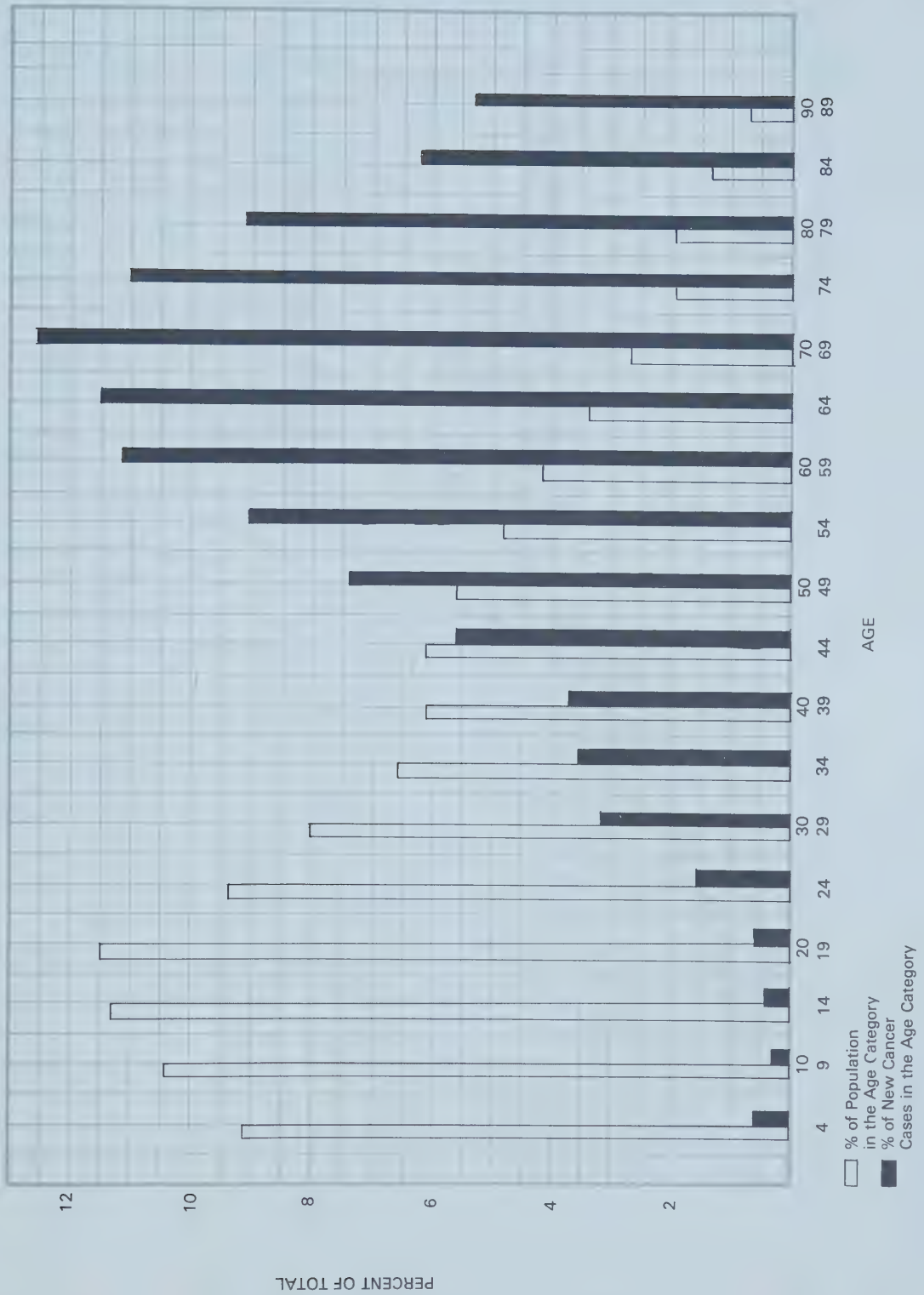
AGE	MALE	FEMALE	TOTAL	% of TOTAL
0-4	76.7	72.6	149.3	8.9
5-9	86.5	83.3	169.8	10.1
10-14	95.1	90.7	185.8	11.0
15-19	87.6	83.4	171.0	10.2
* 20-24	76.3	76.4	152.7	9.1
25-29	65.6	65.4	131.0	7.8
30-34	54.3	52.8	107.1	6.4
35-39	51.1	47.6	98.7	5.9
40-44	50.8	46.0	96.8	5.8
45-49	46.5	44.8	91.3	5.4
50-54	39.6	39.6	79.2	4.7
55-59	34.1	33.9	68.0	4.0
60-64	28.2	27.8	56.0	3.3
65-69	22.7	21.6	44.3	2.6
70-74	16.4	16.3	32.7	1.9
75-79	10.6	11.7	22.3	1.5
80-84	7.0	7.8	14.8	0.9
85-89	3.7	4.2	7.9	0.5
90+	1.4	1.8	3.2	0.2
TOTAL	854.2	827.7	1681.9	100

AGE DISTRIBUTIONS OF INITIAL MALIGNANT REGISTRATIONS IN ALBERTA 1973.

Age Group	% of Population	MALE		FEMALE		TOTALS	
		No.	% of Total Male Cancers	No.	% of Total Female Cancers	No.	% of All Cancers
0-4	8.9	12	0.5	14	0.6	26	0.6
5-9	10.1	10	0.4	3	0.1	13	0.3
10-14	11.0	6	0.3	11	0.5	17	0.4
15-19	10.2	12	0.5	16	0.7	28	0.6
20-24	9.1	28	1.2	40	1.8	68	1.5
25-29	7.8	29	1.3	109	4.9	138	3.1
30-34	6.4	32	1.4	120	5.3	152	3.4
35-39	5.9	53	2.3	110	4.9	163	3.6
40-44	5.8	86	3.8	158	7.0	244	5.4
45-49	5.4	129	5.7	197	8.8	326	7.2
50-54	4.7	166	7.3	230	10.2	396	8.8
55-59	4.0	245	10.8	245	10.9	490	10.9
60-64	3.3	279	12.3	227	10.1	506	11.2
65-69	2.6	323	14.3	228	10.2	551	12.2
70-74	1.9	302	13.3	182	8.1	484	10.7
75-79	1.3	225	9.9	175	7.8	400	8.9
80-84	0.9	178	7.9	99	4.4	277	6.1
85-89	0.5	116	5.1	60	2.7	176	3.9
90+	0.2	35	1.5	22	1.0	57	1.3
TOTAL		2266		2246		*4512	

*Age unavailable on 11 cases

DISTRIBUTION OF POPULATION AND NEW CANCER CASES BY AGE



COMPARISON OF MALE AND FEMALE INCIDENCE, 1973
TOTAL INCIDENCE/100,000

AGE GROUP	MALES	FEMALES	RATIO M/F
0 - 4	15.6	19.3	0.8
5 - 9	11.6	3.6	3.2
10 - 14	6.3	12.1	0.5
15 - 19	13.7	19.2	0.7
20 - 24	36.7	52.4	0.7
25 - 29	44.2	166.7	0.3
30 - 34	58.9	227.3	0.3
35 - 39	103.7	231.1	0.4
40 - 44	169.3	343.5	0.5
45 - 49	277.4	439.7	0.6
50 - 54	419.2	580.8	0.7
55 - 59	718.5	722.7	1.0
60 - 64	989.4	816.5	1.2
65 - 69	1422.9	1055.6	1.3
70 - 74	1841.5	1116.6	1.6
75 - 79	2122.6	1495.7	1.4
80 - 84	2542.9	1269.2	2.0
85 - 89	3135.1	1428.6	2.2
90+	2500.0	122.2	2.0

AGE SPECIFIC INCIDENCE RATES (REGISTERD CASES, 1973)

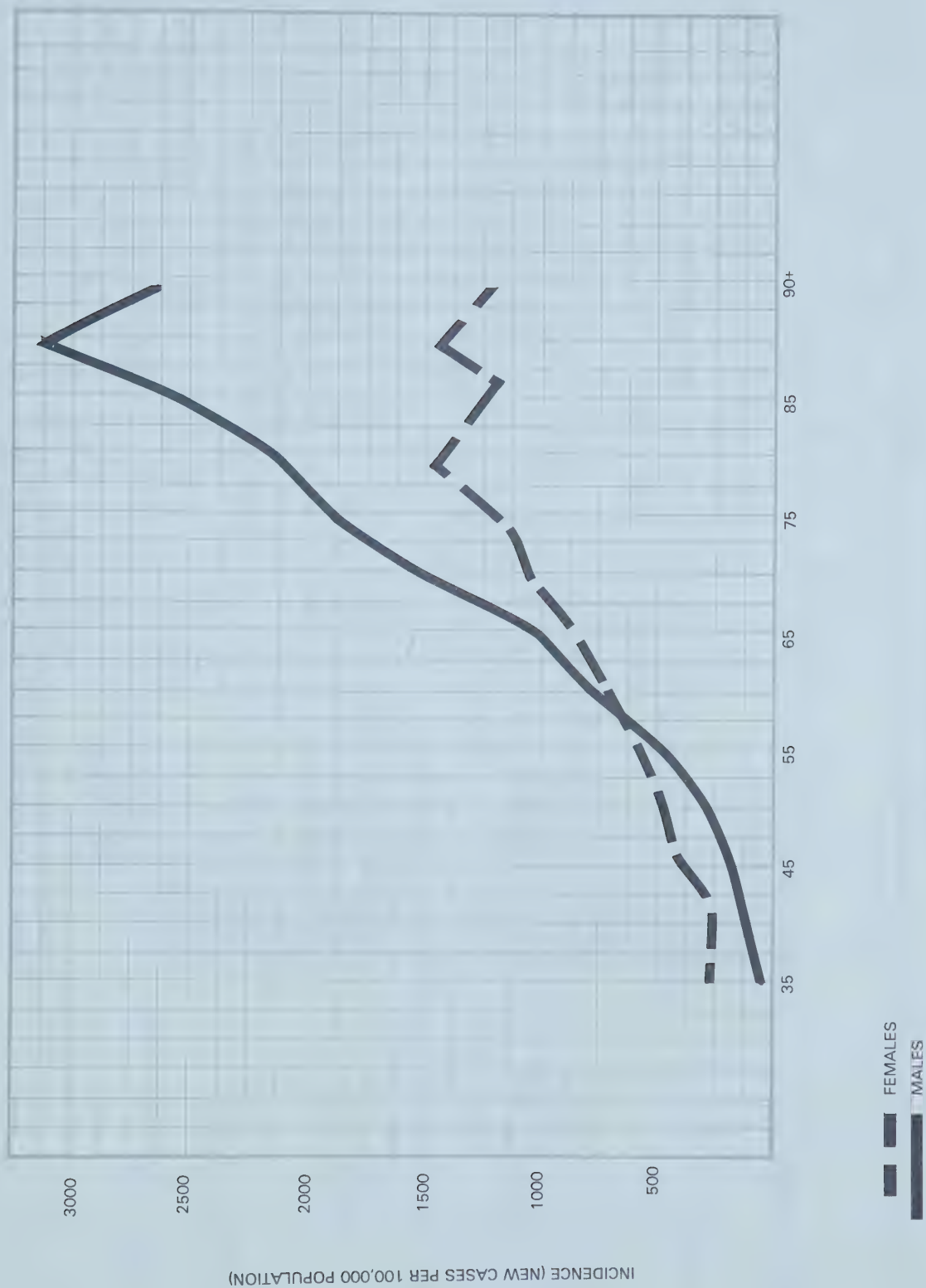


TABLE 1
NEW REGISTRATIONS BY AGE AND SEX

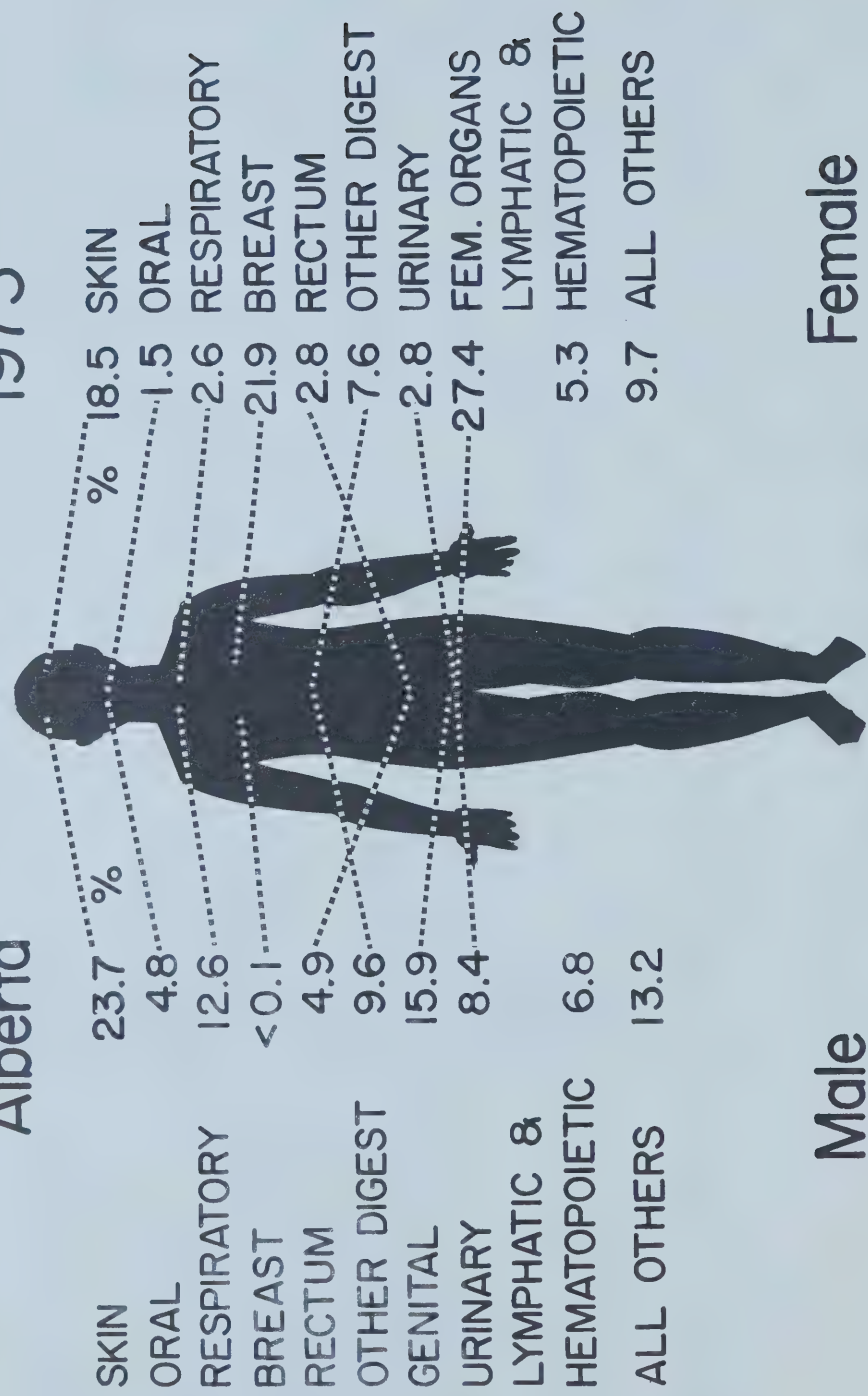
		0 - 34		35 - 44		45 - 54		55 - 64		65 - 74		75 - 84		85+		Total	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HEAD AND NECK	Buccal cavity, Pharynx	1	5	9	6	22	3	23	10	29	2	21	7	4	1	109	34
	Oesophagus	1	0	1	1	3	3	3	3	3	2	6	2	2	2	19	13
	Stomach	1	0	8	0	5	7	21	5	26	15	13	6	4	2	78	35
	Small Intestine	0	0	0	0	0	0	2	2	3	2	1	0	0	0	6	4
GASTRO-INTESTINAL	Large Intestine	1	8	5	6	16	19	34	32	39	36	28	26	13	6	136	133
	Rectum, Recto-Sigmoid Junction (excluding Rectum)	1	0	4	4	21	8	25	21	31	12	20	16	9	1	111	62
	Pancreas	0	0	3	2	13	10	15	4	10	9	7	2	2	0	50	27
	Gall Bladder	0	0	0	1	2	2	3	6	3	4	2	3	1	2	11	18
	Larynx	0	0	1	0	2	1	10	0	7	0	2	0	0	0	22	1
RESPIRATORY TRACT	Trachea, Bronchus, Lung	0	2	10	7	42	6	97	20	90	14	42	7	7	2	288	58
BRAIN AND CENTRAL NERVOUS SYSTEM	Brain & Nervous System	17	11	6	5	12	10	16	14	8	2	2	0	1	0	62	42
BONE & CONNECTIVE TISSUE	Bone, Connective Tissue	9	6	2	0	6	2	3	6	4	3	5	4	3	0	32	21
SKIN	Skin including Melanoma	23	32	54	34	87	67	124	92	124	90	83	78	44	22	539	415
BREAST	Breast	0	14	0	52	1	150	0	104	0	104	1	46	0	23	2	493
MALE GENITAL	Prostate	1		0		6		53		122		96		40		319	
	Testis and Male Genitalia	21		11		5		1		2		1		1		42	
FEMALE GENITAL	Cervix Invasive	14		20		24			9		10	2		3		82	
	Cervix In-situ	169		93		28			13		2	0		0		305	
	Uterus	1		6		29			57		33	6		5		137	
	Ovary, Fallopian Tube	3		12		24			17		10	12		0		78	
	Other Female Organs	3		3		3			2		2	0		1		14	
URINARY TRACT	Bladder	5	3	7	1	11	2	35	0	36	10	33	8	8	3	135	27
	Kidney	3	4	1	1	8	2	23	6	15	8	7	12	0	2	57	35
THYROID	Thyroid	3	7	2	2	1	4	1	3	2	3	0	2	0	0	9	21
	Hodgkin's	12	10	1	3	4	1	0	1	2	2	1	1	0	0	20	18
LYMPHATIC & HAEMATOPOIETIC TISSUE	Non-Hodgkin's Lymphoma	8	2	4	6	10	3	7	10	11	7	6	5	1	0	47	33
	Multiple Myeloma	0	0	1	0	2	2	2	5	11	4	2	1	1	0	19	12
	Leukemia: Acute Lymphatic	11	11	0	0	0	1	0	0	1	0	0	1	0	1	12	14
	Chronic Lymphatic	1	0	0	0	2	2	3	7	12	4	5	4	0	6	23	23
	Acute Myeloid	4	2	1	0	0	0	2	0	3	2	3	2	1	0	14	6
	Chronic Myeloid	3	1	1	0	0	3	2	0	2	2	1	2	0	0	9	8
	Other	2	0	0	0	1	1	0	0	2	1	5	1	0	0	10	3
	Other Primary Sites	3	2	3	2	4	0	4	5	7	5	2	5	2	1	25	20
	Primary Site Unknown	1	3	4	2	9	10	16	17	23	9	11	12	6	2	70	55

TABLE II
INCIDENCE RATES BY AGE AND SEX
(New Registrations per 100,000 population)

		0 - 34		35 - 44		45 - 54		55 - 64		65 - 74		75 - 84		85+		Total	
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HEAD AND NECK	Buccal cavity, Pharynx	0.2	1.0	8.8	6.5	25.6	3.6	37.1	16.1	74.4	5.3	116.7	35.0	80.0	16.7	12.8	4.1
	Oesophagus	0.2	0	1.0	1.1	3.5	3.6	4.8	4.8	7.7	5.3	33.3	10.0	40.0	33.3	2.2	1.0
	Stomach	0.2	0	7.8	0	5.8	8.3	33.9	8.1	66.7	39.5	72.2	30.0	80.0	33.3	9.1	4.2
	Small Intestine	0	0	0	0	0	0	3.2	3.2	7.7	5.3	5.6	0	0	0	0.7	0.5
GASTRO-INTESTINAL	Large Intestine (excluding Rectum)	0.2	1.5	4.9	6.5	18.6	22.6	54.8	51.6	100.0	94.7	155.6	130.0	260.0	100.0	15.9	16.1
	Rectum, Recto-Sigmoid Junction	0.2	0	3.9	4.3	24.4	9.5	40.3	33.9	79.5	31.6	111.1	80.0	180.0	16.7	13.0	7.5
	Pancreas	0	0	2.9	2.2	15.1	11.9	24.2	6.5	25.6	23.7	38.9	10.0	40.0	0	5.9	3.3
	Gall Bladder	0	0	0	1.1	2.3	2.4	4.8	9.7	7.7	10.5	11.1	15.0	20.0	33.3	1.3	2.2
RESPIRATORY TRACT	Larynx	0	0	1.0	0	2.3	1.2	16.1	0	17.9	0	11.1	0	0	0	2.6	0.1
	Trachea, Bronchus, Lung	0	0.4	9.8	7.5	48.8	7.1	156.5	32.3	230.8	36.8	233.3	35.0	140.0	33.3	33.7	7.0
BRAIN AND CENTRAL NERVOUS SYSTEM	Brain & Nervous System	3.1	2.1	5.9	5.4	14.0	11.9	25.8	22.6	20.5	5.3	11.1	0	20.0	0	7.3	5.1
BONE & CONNECTIVE TISSUE	Bone, Connective Tissue	1.7	1.1	2.0	0	7.0	2.4	4.8	9.7	10.3	7.9	27.8	20.0	60.0	0	3.7	2.5
SKIN	Skin including Melanoma	4.2	6.1	52.9	36.6	101.2	79.8	200.0	148.4	317.9	236.8	461.1	390.0	880.0	366.7	63.1	50.2
BREAST	Breast	0	2.7	0	55.9	1.2	178.6	0	167.7	0	273.7	5.6	230.0	0	383.3	0.2	59.6
MALE GENITAL	Prostate	0.2	0	0	0	7.0	0	85.5	312.8	533.3	800.0	5.6	0	0	37.4	4.9	0
	Testis and Male Genitalia	3.9	10.8	0	0	5.8	0	1.6	5.1	0	0	0	0	20.0	0	0	0
	Cervix Invasive	2.7	0	21.6	0	28.6	0	14.5	0	26.3	0	10.0	0	50.0	0	9.9	0
	Cervix In-situ	82.2	0	100.0	0	33.3	0	21.0	0	5.3	0	0	0	0	0	36.9	0
FEMALE GENITAL	Uterus	0.2	0	6.5	0	34.5	0	91.9	0	86.8	0	30.0	0	83.3	0	16.6	0
	Ovary, Fallopian Tube	0.6	0	12.9	0	28.6	0	27.4	0	26.3	0	60.0	0	0	0	9.4	0
	Other Female Organs	0.6	0	8.2	0	3.6	0	3.2	0	5.3	0	0	0	16.7	0	1.7	0
URINARY TRACT	Bladder	0.9	0.6	6.9	1.1	12.8	2.4	56.5	0	92.3	26.3	183.3	40.0	160.0	50.0	15.8	3.3
	Kidney	0.6	0.8	1.0	1.1	9.3	2.4	37.1	9.7	38.5	21.1	38.9	60.0	0	33.3	6.7	4.2
THYROID	Thyroid	0.6	1.3	2.0	2.2	1.2	4.8	1.6	4.8	5.1	7.9	0	10.0	0	0	1.1	2.5
	Hodgkin's	2.2	1.9	1.0	3.2	4.7	1.2	0	1.6	5.1	5.3	5.6	5.0	0	0	2.3	2.2
	Non-Hodgkin's Lymphoma	1.5	0.4	3.9	6.5	11.6	3.6	11.3	16.1	28.2	18.4	33.3	25.0	20.0	0	5.5	4.0
	Multiple Myeloma	0	0	1.0	0	2.3	2.4	3.2	8.1	28.2	10.5	11.1	5.0	20.0	0	2.2	1.5
LYMPHATIC & HAEMATOPOIETIC TISSUE	Leukemia: Acute Lymphatic	2.0	2.1	0	0	0	1.2	0	0	2.6	0	0	5.0	0	16.7	1.4	1.7
	Chronic Lymphatic	0.2	0	0	0	2.3	2.4	4.8	11.3	30.8	10.5	27.8	20.0	0	100.0	2.7	2.8
	Acute Myeloid	0.7	0.4	1.0	0	0	3.2	0	7.7	5.3	16.7	10.0	20.0	0	0	1.6	0.7
	Chronic Myeloid	0.6	0.2	1.0	0	0	3.6	3.2	0	5.1	5.3	5.6	10.0	0	0	1.1	1.0
	Other	0.4	0	0	0	1.2	1.2	0	0	5.1	2.6	27.8	5.0	0	0	1.2	0.4
	Other Primary Sites	0.6	0.4	2.9	2.2	4.7	0	6.5	8.1	17.9	13.2	11.1	25.0	40.0	16.7	2.9	2.4
	Primary Site Unknown	0.2	0.6	3.9	2.2	10.5	11.9	25.8	27.4	59.0	23.7	61.1	60.0	120.0	33.3	8.2	6.7

(The figures in Tables I and II do not include second primaries and cases treated elsewhere)

Relative Frequency of Registered Cancer Cases Alberta 1973



Male

Female

**INCIDENCE RATES — ALL SITES
ALL REPORTED CASES 1962 - 1973**

YEAR	RATE/100,000 POPULATION	YEAR	RATE/100,000 POPULATION
1962	240.7	1968	320.5
1963	258.9	1969	298.1
1964	268.5	1970	308.1
1965	270.4	1971	316.4
1966	293.3	1972	312.4
1967	304.6	1973	340.5

The increase in incidence rates between 1972 and 1973 is mainly due to an improvement in reporting from Vital Statistics and to better cooperation from the Medical profession as a whole.

OVERALL INCIDENCE OF CANCER 1962 - 1973

